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Editorial

It is the matter of immense pleasure that Tikapur Multiple Campus, Research Management Cell (RMC) has been able to release the 6th volume of our Journal 'Journal of Tikapur Multiple Campus, Vol.6' among the valued readers. This issue is another affirmation of our unflagging commitment to bring out the latent capabilities of academics and professionals to speeding up research hunt and to hone professional knowledge, skill and development. Our attempt has awoken the professionals engaged in higher education and poked them to research, write and disseminate. It is our fervent belief that such ongoing endeavours and practices could add significant impetus to research culture among the teaching professionals and research scholars. This volume has been the product of rigorous process of double blind review, intensive editing and copy editing by the group of scholars in the respective genre.

This volume consists of twenty one articles from diverse field of study in Nepali and English language from Nepal and China. The area of papers ranges from Economics, Computer Application, Development Studies, Chemistry, Agriculture Science, Language Education, and Literature to Social Sciences. The majority of the articles are based on primary information and research based. At the same time some papers are literature based and more close to feature articles. The issues that the authors have raised and discussed are significant to add the base of knowledge in respective genre. The research based informed knowledge in the field such as economics, agriculture science, language, literature and social science certainly will help policy makers, planners, curriculum designers, teacher educators, experts and new scholars of the field. More importantly, the valued papers from interdisciplinary area will be an addition of a brick in a building, though not perfect, towards reform in existing knowledge.

We extend our gratitude to Far Western University, Kanchanpur and University Grants Commission, SanathimiBhaktapur for magnanimous support for the growth of Tikapur Multiple Campus and publication of this journal. We are indebted to Tikapur Multiple Campus for this academic initiative, priority to this scholarly task and financial support. We express our gratitude to Mr. KesharBahadurKunwar, Campus Chief; Prof. Dr. Lal Prasad Amgain, Dean, Faculty of Agriculture Science, Far Western University for generous support and coordination in this endeavor. We thank the young and energetic team of RMC, Tikapur Multiple Campus for giving the opportunity to collaborate in this academic work. We are indebted to the scholars who have provided us with their valuable articles for dissemination through this channel, reviewers for their act of rigorous review, the members of editorial board, copy editors and managing editor for their untiring effort. Last but not the least, the words of appreciation goes to Mr. Subin Raj Pandey for his attractive setting and Indreni Press for publication.

We have left no stone unturned to bring the issue errorless. However, the chances of human error cannot be denied. We will heartily appreciate and welcome comments and suggestions for the improvements in the next issue.

Editorial Board
June 25, 2023

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Impact of Value-Added Tax on Revenue Generation in Nepal: An ARDL Approach

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Abstract

This paper aims to identify the impact of VAT on revenue generation in Nepal using a quantitative method. Testing the unit root of the series is the first step in determining whether the data are stationary. An Augmented Dicky Fuller unit root test and a co-integration test are employed to check the relationship between the variables under study. This study reveals that LNVAT, LNRCE, LNRIT, LNROT, and LNRNT are significant, which is desirable. As a result, a 1 percent increase in value-added tax leads to a 21.60 percent increase in government tax revenue, while a 1percent increase in custom excise duty leads to a 39.31percent increase in tax revenue. Other macroeconomic variables such as LNRIT, LNROT, and LNRNT contribute 15.32percent, 8.51percent, and 15.06percent to government revenue generation. The P-value of the Breusch-Godfrey serial correlation LM test, the Breusch-Pagan-Godfrey heteroscedasticity test, and the normalcy test are greater than 5percent, which is ideal. As a result, there is no autocorrelation or heteroscedasticity in this model. The residual follows a normal distribution. The diagnostic tests show that the models have the expected econometric features and are structurally sound.

Keywords: unit root, cointegration, autoregressive distributed lag, error correction model

Introduction

In 1918, German businessman Wilhelm Von Siemens proposed the idea of Value Added Tax (VAT), which Thomas S. Adams, an American economist, rapidly adopted. Since its introduction in France in 1954, the value-added tax has spread like wildfire worldwide. Its extensive use has been evident in recent years. Before the 1960s, only a few nations had introduced this tax. During the 1980s, the tax became

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an essential component of the fiscal arsenal of all developed countries and many Latin American, Asian, and African countries. More than 30 countries have imposed VAT since 1980. This brings the overall number of VAT nations to above 60. In the last two years, Benin, Paraguay, Tanzania, Tobago, Thailand, and several other former Soviet Union nations have implemented VAT. Thus, the trend toward VAT adoption has been the most remarkable event in the history of goods taxes in the twenty-first century (Adam, 1982).

In 1954, France was the first European country to use VAT on a large scale. Since then, a considerable number of countries have adopted VAT. Many individuals feel that imposing a value-added tax will improve tax justice and consistency while also providing incentives for improved production and industrialisation. Without a doubt, the expansion of VAT to urbanised and developing countries is an essential topic for research. VAT has become the typical modern tax due to economic and technological changes in the second half of the twentieth century, according to a historical study published by the Financial Times (London). It would not be an exaggeration to say that VAT's evolution as a critical and flexible source of income during the preceding five decades has been unmatched in tax history. Despite widespread VAT reporting, nations such as Argentina, Brazil, Canada, and India have needed help properly adopting VAT. In the United States, there have been proposals to adopt a value-added tax, but the retail sales tax system has been kept. Despite these issues, it can be stated that a value-added tax system has advantages and is strongly recommended for most countries, particularly emerging ones. Internationally, VAT is seen as a tax that the central government most prominently levies, a situation that is difficult to satisfy in a powerful finance system.

VAT is a centrally controlled revenue allocation tax. In a centralised system, it is impossible to see the VAT as a revenue-neutral assessment or one in which the states do not take a loss compared to the current structure. The tax base includes imports, manufacturing, and various stages of sales. If the base is split between the centre and the states, the sequence is out of order, making tax evasion easier and damaging the state's tax base. In nations where VAT is controlled centrally, revenue collected on imports accounts for a higher proportion of overall VAT collections.

Shoup (1988) recommended a value-added tax (VAT) for Japan, developing a complete framework to solve the shortcomings in present turnover taxes. The Japanese government opted not to adopt the tax, despite the reality that it was taken very seriously. Recent studies immediately followed it. Although the state of Michigan in the United States enacted a limited form of the value-added tax (VAT), "the tax was not imposed in any country until 1953." The value-added tax (VAT) replaced the French production taxes in 1954. McMouriceLavre, a French Ministry of Finance employee, is acknowledged as the inventor of modern VAT.

In France, the VAT was initially applied primarily to the industrial sector and extended to wholesale. A separate tax on service and unique activities were added. In the 1960s and early 1970s, VAT advanced in two significant areas. As a first step, several African and Latin American developing nations replaced their turnover taxes with a value-added tax modelled after the French model of 1954. Some of these nations, including the Ivory Coast, were formerly French colonies (Due & Friedlander, 1976).

This research focuses on what policies may be produced, what regulatory acts are necessary, and the necessity for rule and regulation updates to enhance and perfect the operation of the market. Standard is an element in establishing revenue administration. Financial statements should be kept to fulfil the requirements of all interested parties.

The research will provide government authorities with vital information. According to the researcher, the study would aid in formulating appropriate policies for all stakeholders. Additionally, the study will serve as a resource for other researchers who wish to conduct further research on the issue.

The study has several drawbacks. The key constraints of the study include a need for more time, a restricted budget, and outdated information. For forty-four years, from 1974/75 to 2017/18, time series data were utilised to evaluate the impact of VAT on government income generation in Nepal. The primary reason for selecting this time for examination is its simplicity. This study used only secondary data from a variety of sources. Hence, the validity and reliability may depend on these data reliability.

The main objective of this study is to assess the impact of VAT on government revenue generation in Nepal. To fulfil this objective, the following research hypotheses were formed:

H_0 : VAT has no significant contribution to government revenue generation in Nepal.

H_1 : VAT has a significant contribution to government revenue generation in Nepal.

Literature Review

The concept of value-added tax (VAT) has been extensively studied in the field of public finance and taxation. VAT is a consumption tax that is levied on the value added at each stage of production and distribution, and it is considered one of the most important sources of government revenue in many countries. Numerous studies have investigated the relationship between VAT and government revenue, as well as the impact of other macroeconomic variables on revenue generation. For instance, studies have found that VAT has a positive effect on government revenue in countries such as Turkey, Saudi Arabia, and South Africa. Similarly, studies have shown that variables such as gross domestic product (GDP), inflation, and trade openness also contribute

significantly to government revenue generation (Farouq & Ahmad, 2020).

Dahal (2009) argues that developing countries' resource gaps are growing, resulting in economic and financial deficits. Both domestic and foreign borrowing is used to cover the rising resource deficit, carrying on the nation's debt to future generations. In Nepal, where most people live in poverty and those who work have little taxable income, income collection is difficult. Complex administration needs creative strategies for discovering new taxpayers and bringing them into the system. In 2008-2009, the expected tax burden ratio was 15.7 per cent of GDP. Nepal's flexible tax structure needs to be revised to fund development. Internal revenue is required to be increased. According to research and analysis, the government has streamlined and modernized the tax system. These reforms focused on providing tax policy instruments. Nepal has adopted tax laws, regulatory reforms, environmental improvements, and tax administration modifications.

Denis (2010) examines how VAT affects GDP in Nigeria. The analysis revealed a very significant Pearson correlation of 96 per cent. A 95 per cent confidence level comprehensive test rated that VAT revenue differs from GDP. The research recommends the status quo since it benefits the economy and facilitates the application of tax rules.

Zhou et al. (2013) examined how the Malaysian goods and service tax (GST) affected pricing levels, economic expansion, revenue generation, and other factors. Results showed that GST would lead to lower prices and increased GDP in most cases. They have also discussed the functioning of GST systems in different countries and the policies of other countries that may be considered. For instance, in Singapore, where the GST has been widely adopted, lowering direct taxes and establishing a relatively low GST rate have played significant roles. It was founded on the hypothesis that a country's working population, which might fall as life expectancy rises, is directly proportional to its income tax base. In addition, ex-pat workers in Singapore may take advantage of several tax breaks. On the other hand, the Goods and Services Tax would result in more outstanding taxes and more excellent revenues since it is a tax everyone must pay. Given the concept of ITC under GST, it was also likely that most businesses would be compliant and not cheat GST. The results for all of these in Singapore were positive.

Okoli and Matthew (2015), in their study titled "Correlation between Value Added Tax and National Income in Nigeria: An Error Correction Approach (ECM) Model," looked into the extent to which the VAT contributed to the total amount of revenue collected by the federal government in Nigeria from 1994 to 2012, as well as the method in which this contribution was split among the various other types of

taxation. According to the study's findings, which used the Error Correction Model (ECM), the value-added tax was the second-largest comprehensive source of all money received by the federal government.

Owino et al. (2017) used in their study, "Influence of Information and Communication Technology on Revenue Collection in County Governments in Kenya: A Comparative Study of Migori and Homa Bay County Governments," a correlation study research design to determine the influence of ICT systems for single business permits on revenue collection, evaluate the impact of ICT systems for land rates on revenue collection, and establish the power of ICT systems for other types of revenue. The target population of 864 consisted of 848 tax clerks and 16 revenue officials, and 86 respondents were selected using a stratified random selection methodology. Primary data were collected through a questionnaire and analysed using percentages, means, and regression techniques. The findings showed a strong and almost perfect link between revenue collection and the use of ICT systems by county governments. The usage of ICT systems may be responsible for up to 91.9 percent of the variation in the revenue collection efficiency in county governments. According to additional studies, implementing these strategies improves the county governments' efficiency in collecting taxes.

Takuma and Iyke (2017) examined the connection between tax revenue and Ghana's economic growth. They said that philosophically and empirically, there are complex links between taxes and economic development. The findings are consistent with the idea that tariffs could affect economic growth. The influence on policy is relatively straightforward; policymakers may implement measures that broaden the tax base to increase tax revenue.

Ali and Dalmar (2018) examined grants that hurt GDP, but domestic tax income considerably benefits economic growth. As previously said, gifts cannot substitute the production of domestic revenue, which is the more important of the two components. More emphasis should be on generating domestic tax revenue, which is essential which is r promoting economic growth.

Kharel (2021) examined the effect of tax income on Nepal's economic growth from 2000 to 2018. Secondary time-series data were collected from the Ministry of Finance's Economic Survey, the Nepal Rastra Bank's Quarterly Economic Bulletin, the Revenue Department, and previous scholarly works to accomplish the objectives. The collected data was examined using a model of linear regression. The data indicate that tax income and total revenue substantially positively affect GDP. Positive developments in tax collection have yet to be sufficient to meet Nepal's government expenses.

A few studies have been conducted in the past, but they need to be more comprehensive to properly represent the authentic picture of revenue collection, the scenario, and the difficulties related to VAT in Nepal. Using the ARDL econometric approach, this study empirically analysed the impact of VAT on revenue generation in the Nepalese economy.

Methods and Procedures

Research Design

This study combines analytical and descriptive research methods. It has been utilised as a mixed technique depending on the type and source of the data and information. The results of this investigation were analysed using econometric models, graphs, tables, and statistical tools.

Nature and Sources of Data

The study's primary goals are to examine the impact of VAT on government revenue generation in Nepal. The relevant materials were reviewed to obtain information for this study, and the essential information was gathered from various secondary sources.

Time series data spanning forty-four years, from 1974/75 to 2017/18, were utilised to examine the influence on revenue generation in Nepal. Secondary data was obtained when needed from the Ministry of Finance (MOF), Nepal Rastra Bank (NRB), National Planning Commission (NPC) and Central Bureau of Statistics (CBS).

Data Collection Tools and Procedures

The study has used specific data collection and analysis techniques appropriate to the topic. As a consequent tool has been employed, examine the existing data that enable the collection of information related to the research objectives. A document review strategy was used in the investigation.

Data Analysis Techniques

The researchers employed quantitative tools and econometric methods to analyse the data. This investigation made use of time series data. The first step in data analysis is to examine the unit root of the series to determine if the data are stationary. The co-integration test, an improved Dicky Fuller unit root test, investigates the relationship between the variables under consideration. ARDL modelling is employed as a result of the co-integration test. Post-estimation tests include serial correlation, normality, heteroscedasticity, Granger causality, the cumulative sum of recursive residuals (CUSUM), and the cumulative sum of squares of recursive residuals (CUSUMQ) were used to evaluate the model's stability.

The Model Specification

Some macroeconomic development indicators, including Real Tax Revenue (RTR), Real Value Added Tax (RVAT), Real Custom and Excise Duty (RCE), Real Income Tax (RIT), Real Other Tax (ROT), and Real Non Tax (RNT), have been subjected to this study's analysis. However, this analysis has been enhanced in contrast to other studies because it captures the relationship between VAT and key macroeconomic indicators, such as RTR, RCE, RIT, ROT, and RNT. It also uses data spanning forty-four years, from 1974/1975 to 2017/2018.

The general model is

$$RTR = f(RVAT, RCE, RIT, ROT, RNT) \dots\dots\dots (Model 1)$$

Where,

RTR = Real Tax Revenue, which incorporates total tax and total non-tax revenue

RVAT= Real Value Added Tax

RCE= Real Custom and Excise Duty

RIT= Real Income Tax

ROT= Real other Tax

RNT= Real Non-Tax

Model 1 can be rearranged in natural logarithm form.

$$\ln RTR_t = \beta_0 + \beta_1 \ln(RVAT_t) + \beta_2 \ln(RCE_t) + \beta_3 \ln(RIT_t) + \beta_4 \ln(ROT_t) + \beta_5 \ln(RNT_t) + \mu_t \dots\dots\dots (1.1)$$

Based on our model, ARDL bound testing will be as:

$$\Delta \ln RTR_t = \beta_0 + \sum_{i=0}^q \beta_{1i} \Delta \ln RTR_{t-i} + \sum_{i=0}^q \beta_{2i} \Delta \ln RVAT_{t-i} + \sum_{i=0}^q \beta_{3i} \Delta \ln RCE_{t-i} + \sum_{i=0}^q \beta_{4i} \Delta \ln RIT_{t-i} + \sum_{i=0}^q \beta_{5i} \Delta \ln ROT_{t-i} + \sum_{i=0}^q \beta_{6i} \Delta \ln RNT_{t-i} + \beta_7 \ln RTR_{t-1} + \beta_8 \ln RVAT_{t-1} + \beta_9 \ln RCE_{t-1} + \beta_{10} \ln RIT_{t-1} + \beta_{11} \ln ROT_{t-1} + \beta_{12} \ln RNT_{t-1} + \mu_t \dots\dots\dots (1.2)$$

Where Δ is the first difference operator, q is the optimum lag length, $\beta_1 \dots \beta_6$ are short run dynamics of the model, and $\beta_7 \dots \beta_{12}$ are long run elasticities. μ_t is the error term. A bound test can be performed using the information provided above. According to the results of the bound test, the null hypothesis should be rejected if the value of the compute F statistics is higher than the upper bound I (1). If the computed value of the F statistics is higher than the upper bound, co-integration exists, and the research is continued for the above equation's error-correcting form. We perform the ARDL short run, based on the OLS technique, if F statistics is smaller than the lower

bound or if an unclear value falls between the lower bound I (0) and upper bound I (1). If F statistics is less than the lower bound or an uncertain number occurs between the lower bound I (0) and upper bound I (1). we do the ARDL short run, which is based on the OLS approach (1).

$$\Delta \text{LnRTR} = \beta_0 + \sum_{i=0}^q \beta_1 \Delta \text{LnRTR}_{t-i} + \sum_{i=0}^q \beta_2 \Delta \text{LnRVAT}_{t-i} + \sum_{i=0}^q \beta_3 \Delta \text{LnRCE}_{t-i} + \sum_{i=0}^q \beta_4 \Delta \text{LnRIT}_{t-i} + \sum_{i=0}^q \beta_5 \Delta \text{LnROT}_{t-i} + \sum_{i=0}^q \beta_6 \Delta \text{LnRNT}_{t-i} + \lambda \text{ECT}_{t-i} + \mu_t \dots\dots\dots (1.3)$$

Where q_1 --- q_6 are optimal lag length and λ is the speed of adjustment parameter. ECT signifies the error correction term derived from long run relationship from the above equation.

Results and Discussion

Unit Root Test

In a research study, it is critical to use time series data. Non-stationary data is common in time series data, and non-stationary data is unexpected and cannot be predicted or projected. The conclusion drawn from non-stationary time series data may need more accurate and reliable (Gujarati & Gunasekar, 2012). As a consequence, the study's findings should be reliable and consistent. As a result, if the data is in a research study, time series data are crucial. Non-stationary data are common in time series data, and non-stationary data are unpredictable and cannot be projected. Non-stationary time series data may produce misleading and incorrect conclusions (Gujarati & Gunasekar, 2012). As a result, the study's findings should be consistent and reliable. So, non-stationary data needs to be altered into static data.

This study uses an Augmented Dickey-Fuller (ADF) unit root test to check the stationary. The result gained from the formal unit root test is summarised in Table 1.

Table1

Augmented Dickey Fuller Test

Variables	Level constant and trend	First difference constant and trend	Order of integration
Ln RTR	-0.322774(0.9873)	-6.663060(0.0000)	I(1)
LnRVAT	-2.528830 (0.3135)	-7.745170 (0.0000)	I(1)
LnRCE	-0.206982 (0.9908)	-5.585788 (0.0002)	I(1)
LnRIT	-4.814694 (0.0019)	-4.172676 (0.0124)	I(0), I(1)
LnROT	-1.055310 (0.9243)	-9.014642 (0.0000)	I(1)

LnRNT	-3.198021 (0.0984)	-6.825967 (0.0000)	I(1)
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Source: Researcher's calculation using EViews 10

Table 1 shows that the variable under examination, Ln RIT, is stationary at the level according to the ADF test. Others, on the other hand, are not stationary. All variables become stationary when we convert all the data in the first difference. It denotes that the data are of mixed types: I (0) and I (1). When the data have a mixed order of integration, the Johansen co-integration test cannot be used. As a result, information is sent to the auto-regressive distributive lag (ARDL) model for further analysis.

Bound Testing

The data used in this research are mixed-order and became stationary after becoming the first difference. The ARDL bound testing model is the only choice when working with data of types I (0) and I (1). Bound testing may be used to demonstrate the presence of co-integration among the variables employed in this investigation. Pesaran et al. (2001) presented the following choice criteria: (See Appendix II)

- If the computed value of F statistics is more than the upper limit of the critical values, co-integration may be established.
- If the computed value of F statistics is less than the lower limit of the critical importance, the research found that the variables do not co-integrate.
- If the estimated value of the F statistics falls between the upper and lower bounds of the critical importance, it may be argued that there is inconclusive co-integration or that co-integration is not proven.

Table 2

Bound Test

F-Bounds Test		Null Hypothesis: No levels of relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic	4.400019	10%	2.08	3
K	5	5%	2.39	3.38
		2.5%	2.7	3.73
		1%	3.06	4.15

Source: Researcher's calculation using EViews 10

Since the F-statistic of 4.400019 in the preceding table is higher than the upper limit of I(1), the null hypothesis may be rejected, and we can accept that a long-run

relationship does exist. Therefore, at this point, we may run ECM, long run, and short run through ARDL.

ARDL Estimation

ARDL estimate was used to assess the short-run and long-run relationship between variables. First, the ARDL bound test is administered, and the test result is provided as follows:

Table 3

Long-Run Coefficients of ARDL (3, 2, 2, 3, 3, 2) Model Dependent Variable D(LNRTR)

Case 2: Restricted Constant and No Trend				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNRVAT	0.216014	0.013793	15.66055	0.0000
LNRCE	0.393101	0.027763	14.15935	0.0000
LNRIT	0.153213	0.011362	13.48473	0.0000
LNROT	0.085134	0.014961	5.690426	0.0000
LNRNT	0.150669	0.009098	16.55987	0.0000
C	1.530102	0.074522	20.53229	0.0000
EC = LNRTR - (0.2160*LNRVAT + 0.3931*LNRCE + 0.1532*LNRIT + 0.0851				
*LNROT + 0.1507*LNRNT + 1.5301)				

Source: Researcher's calculation using EViews 10

Table 3 shows that LNVAT, LNRCE, LNRIT, LNROT, and LNRNT are all significant, which is a good sign. As a result, a 1% rise in value-added tax results in a 21.60% gain in tax revenue for the government, whereas a 1% increase in custom excise duty results in a 39.31% increase in tax revenue. Similarly, other macroeconomic variables such as LNRIT, LNROT, and LNRNT contribute 15.32 %, 8.51 %, and 15.06 % of the government's income creation. In the long term, these factors positively and significantly influence RTR in Nepal.

Table 4

Error Correction Representation of the Selected Model: ARDL (3, 2, 2, 3, 3, 2) Model Dependent Variable D(LNRTR)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LNRTR(-1))	0.502928	0.123741	4.064350	0.0006
D(LNRTR(-2))	0.068088	0.022437	3.034600	0.0065

D(LNRVAT)	0.292222	0.017206	16.98339	0.0000
D(LNRVAT(-1))	-0.107347	0.034271	-3.132325	0.0052
D(LNRCE)	0.379348	0.016517	22.96771	0.0000
D(LNRCE(-1))	-0.197090	0.050696	-3.887637	0.0009
D(LNRIT)	0.121739	0.010281	11.84107	0.0000
D(LNRIT(-1))	-0.072011	0.016690	-4.314638	0.0003
D(LNRIT(-2))	-0.034688	0.011772	-2.946547	0.0080
D(LNROT)	0.056727	0.007990	7.099814	0.0000
D(LNROT(-1))	-0.027445	0.011686	-2.348521	0.0292
D(LNROT(-2))	-0.018927	0.010125	-1.869303	0.0763
D(LNRNT)	0.181901	0.007807	23.29842	0.0000
D(LNRNT(-1))	-0.075672	0.021693	-3.488339	0.0023
CointEq(-1)*	-0.998689	0.157827	-6.327731	0.0000
R-squared	0.992564	Mean dependent var		0.073222
Adjusted R-squared	0.988560	S.D. dependent var		0.060220
S.E. of regression	0.006441	Akaike info criterion		-6.976002
Sum squared resid	0.001079	Schwarz criterion		-6.349086
Log-likelihood	158.0081	Hannan-Quinn criteria.		-6.747714
Durbin-Watson stat	2.021015			

Source: Researcher's calculation using EViews 10

Table 4 shows the error correction representation results for the chosen ARDL model. The coefficients of the variables with the first difference represent the short-run elasticities. The LNRVAT exhibits a positive and significant association with the dependent variable LNRTR at a 5% significance level. It indicates that a 1% rise in VAT results in a 29.22% increase in TR. At the one per cent level, the coefficient of the error correction term (-0.998689) is significant. The existence of long-run correlations among the variables is strengthened by the error correction term's highly significant negative sign. However, the speed of adjustment from the previous year's disequilibrium in TR added to the current year's equilibrium is only 99.86 %.

Diagnostic Tests

Conducting diagnostic tests is a vital step in time series modelling. Diagnostic testing on data series thus offers information regarding how these data might be modelled. When a model is assessed, diagnostic tests can be applied to appraise model residuals, which also help as tests of model competence.

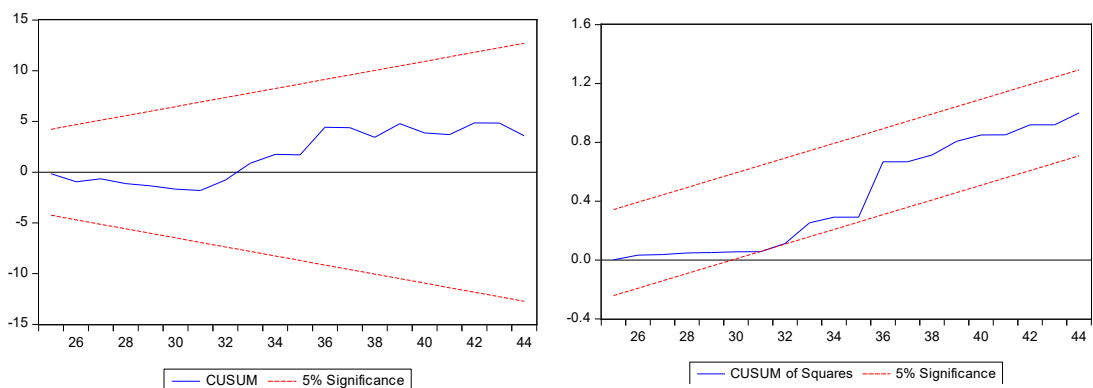
Table 5*Diagnostic Tests*

Test	F-Statistics / Jarque-bera	Obs*R-squared	P- Value
Breusch-Godfrey Serial Correlation LM Test:	0.905619	3.748416	0.1535
Heteroscedasticity Test: Breusch- Pagan-Godfrey	0.365034	10.96412	0.9471
Normality	0.692923	-----	0.707186

The P-values of the Breusch-Godfrey serial correlation LM test, the heteroscedasticity test (Breusch-Pagan-Godfrey) and the normality test are all more than 5%, which is acceptable. As a result, this model is free from autocorrelation and heteroscedasticity. The residual has a normal distribution.

The Stability Test

Acusum test is a popular approach for detecting change points. It began with quality control and proceeded to time series analysis since time series data are subject to changes due to changes in public policies and serious social measures. It is simple to understand and use in real-world situations, and it may be used for both testing and predicting the positions of changes. To assess the model's stability, the study employs the cumulative sum of recursive residuals (CUSUM) and cumulative sum of squares of recursive residuals (CUSUMQ) tests. The CUSUM and CUSUMQ results are shown in the figures below, respectively.

Figure 1*CUSUM Test and CUSUM of Square Test*

The CUSUM and CUSUM OF SQUARE tests were used to assess the stability of the model. If the CUSUM plot falls within the critical limit of 5%, then we cannot reject the null hypothesis of the parameters' stability. As shown in Figure 1.1, the lines fall within a range of 5%, that is statistically significant. The long-run and short-run coefficients of the lines are acceptable across the study period of 1994/75 to 2017/18, indicating that this model is robust and stable. The diagnostic tests demonstrate that the models possess the necessary econometric characteristics. We conclude that the models are structurally sound.

Conclusion

This research shows significant results for LNVAT, LNRCE, LNRIT, LNROT, and LNRNT, which is desired. Therefore, a 1% increase in value-added tax results in an increase in tax income for the government of 21.60%, whereas a 1% increase in custom excise duty increases tax revenue by 39.31%. Similar to LNRIT, LNROT, and LNRNT, additional macroeconomic indicators like these also contribute to the government's income creation to varying degrees (15.32 %, 8.51%, and 15.06%, respectively). Over time, these factors have had a large and favourable influence on RTR in Nepal. It is desirable if the P-value for the Breusch-Godfrey serial correlation LM test, the heteroscedasticity test (Breusch-Pagan-Godfrey), and the normality test are less than 5%. Therefore, autocorrelation and heteroscedasticity are absent from this model. The residual is normally distributed. As both the lines' long-run and short-run coefficients are acceptable over the research period of 1994/75 to 2017/18, it suggests that this model is reliable and stable. The diagnostic tests confirm the models' desirable econometric features. The models are structurally sound.

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Creating Accurate Citations in Academic Writing by Using Endnote X9

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Abstract

With the development of information technology, today's scholars can store references in their library and use it to format citations in academic writing. This phenomenological paper describes how I modified the EndNote X9 reference types and the APA 7th output style; and how I entered the components of citation into the fields for each of the basic reference types in the reference window of the EndNote library to create accurate in-text and end-text citations focusing on the latter one. For this, I utilized my lived experience of using the software for the purpose as a practitioner, trainer, and teacher of it as the data. I present the findings under two global themes of modification of the reference types and the APA 7th output style, and the management of sources in the library for the purpose of their accurate citations in word document. On the findings of this study, it has been drawn that the EndNoteX9, with slight modification of some of the reference types and the APA 7th output style, creates accurate citations of various sources if we assign the accurate reference types to them and enter the data appropriately in each relevant reference fields in the EndNote library. This paper is expected to be useful to the academic writers for systematizing citation in their work.

Keywords: Endnote, citation, reference field, reference type, academic writing

Introduction

When I was carrying out a research for the fulfillment of my master's degree in 1997, I would type the end-text citation of each source to be used ahead of time with due attention to each component of citation with punctuation and formatting, such as italicizing, underlining, and so on in a word file. I would manage the in-text citations later on manually while writing the thesis. But, nowadays, with the development of

information technology, and transmission of its knowledge to the students, they can have it easily with the help of citation management software (Hensley, 2011). Today's students or faculty can import references from databases into their personal library, and use the library to format the citations in academic writing choosing the required citation style, such as MLA, APA, and so on.

The EndNote—the concern of this paper—is one of the popular citation management software programmes among many others, such as BibTex, RefMan, Mendeley, RefWorks, and Zotero used for storing, managing, retrieving, and citing sources in selected output style in an academic writing (Lonergan, 2017). This paper deals with how we can accurately format the citations of various reference types in academic writing by using EndNoteX9 with slight modification of the original reference types and the output style with reference to APA 7th style of citation.

With a good popularity and use of citation management software programmes in academia across the world, EndNoteX9 is gaining a good ground of popularity among Nepalese students and faculty in the recent years. Most of the MPhil and PhD scholars in Graduate School of Education, Faculty of Education, Tribhuvan University, Kirtipur and the master's degree students of English in Mahendra Ratna Campus, Tahachal, where I am involved in teaching the Thesis Writing course, have been practicing EndNoteX9 for last two years to manage citations in thesis writing.

However, using EndNote for managing citation is not a panacea. Therefore, very often, the concerned research committee members comment on the inaccuracy of citations. As reported by one of the research committee members of the Faculty of Education, Tribhuvan University, most of the thesis candidates come up with inaccurate citations in spite of their claims that they have used EndNote. It is firstly because the original reference types and output styles of citation do not produce accurate citation of all types of sources. They need slight change in their configuration. Secondly, to bring about accurate citations, the data should be entered accurately. To enter the input appropriately in the reference fields associated with each concerned reference type, the students require certain level of expertise, which they lack.

The review of extant related literature shows that there is very little dissemination on modification of the EndNote reference types and output styles, and appropriate entry of the input to the relevant reference fields in the EndNote library to produce accurate citation of sources that can be assigned to the basic reference types. Some works, such as Hensley (2011), Lonergan (2017), Lorenzetti and Ghali (2013), and Mendes et al. (2019) deal with the use, usability, and the users' preferences of different citation management software programmes. Most of the works that are fully devoted to the EndNote, for example Hupe (2019), Sharma (2022), Sherwin (2020),

and Walker et al. (2007) highlight only the features and importance of EndNote, and the basic guideline on how to use EndNote. Some works on EndNote, such as Agrawal (2009), and Clarivate Analytics (2018, n.d.), provide a bit detail guideline for using it. However, none of these works orients towards modification of the EndNote reference types and output styles, and strategic entry of the data to the EndNote library to bring about accurate citations of various reference types. The present study fulfills this gap in the existing literature.

Citation, in this study, is regarded to be a cover term to refer to the combination of short in-text citations and their corresponding ‘reference’ or ‘end-text’ citations listed usually at the end of the text (American Psychological Association, 2010, 2020). Therefore, the overarching objective of this descriptive auto-phenomenological study is to describe how to format accurate citations of basic reference types in academic writing using EndNoteX9. Accordingly, the overall contemplation question as the foundation of the study was: How can we achieve accurate citations using EndNoteX9?

This paper is expected to be beneficial to the academic writers, researchers, research supervisors, librarians, and all other related individuals who are using EndNote as practitioners, teachers or trainers in that this study will provide them with the strategy to create accurate citations in academic writing by using EndNoteX9.

Methods and Procedures

This study aimed at exploring my lived experience of creating accurate citations by using EndNoteX9 with reference to APA 7th style of writing with slight modification of EndNote reference types and the output style since the original EndNote reference types and the APA 7th output style is not sufficient to produce an accurate output in accordance with APA (2020). For this, I utilized descriptive auto-phenomenological research design. General phenomenological study deals with gaining “a deeper understanding of the meaning of everyday (“obvious”) phenomena” (Vagle, 2018, p. 35). In descriptive phenomenology, the researcher’s prior knowledge of the world is bracketed in order to concentrate on the perception of the real world phenomena (Smith et al., 2009). More specifically, descriptive auto-phenomenological approach analyzes in isolation the phenomena as experienced by the researcher without any influence of prior knowledge or theory related to the phenomena (Gorichanaz, 2017, p. 3). Accordingly, in this study, I asked myself how I, as a practitioner, teacher, and trainer of EndNote, experienced the phenomenon of using it for creating accurate in-text and end-text citations with especial emphasis on the end-text citation. I collected the required information by recalling how I modified the reference types and APA 7th output style of citation, and how I entered the input in the reference fields associated with the concerned reference types for the purpose of achieving accuracy in citation,

using various sorts of records of the past events in this regard such as diary, notebook, screenshots, and computer memo. I analyzed the information thematically under two global themes.

Results and Discussion

I present and discuss the findings thematically in terms of the modification of the EndNote reference types and the APA 7th output style, and the library management of the sources assigned to some basic reference types to bring about accurate citations in a word file.

Modification of the EndNote Reference types and the APA 7th Output Style

In this section, I explain how I modified the reference types, the bibliography templates, and the configuration of the bibliography author list of the original EndNote library in order to bring about the accurate citation of some basic reference types.

As a response to the problem that ‘EndNote does not give accurate citation of the thesis downloaded from ProQuest database’ as reported by the EndNote users, I customized a reference type—ProQuest Thesis—replacing the reference type ‘Unused 1’ with empty bibliography template available in the list of original EndNote reference types since the citation format of a thesis available from ProQuest Dissertation and Theses database differs from that of other theses (see APA 2020, p. 334).

Then, I added the newly customized reference type in the APA 7th output style which had an empty bibliography template as follows:

ProQuest Thesis

In this empty slot, I created through many trials and errors a bibliography template for the new reference type inserting a series of appropriate fields, punctuations, and symbols as follows so as to produce accurate citation of the source type as per the APA 7th style of citation:

ProQuest Thesis

Author: (Year) .: Title° (`Publication·No.°Publication·Number) |:[Thesis·Type,°University]].°Database·Provider|Name·of·Database·Global.

In addition, I modified the original template of the reference type Thesis:

Thesis

Author: (Year) .: Title° (`Publication·Number°Publication·Number) |:[Thesis·Type,·University].: Name·of·Database.

into the following:

Thesis

Author. (Year) . Title[Thesis Type, University]. URL

to produce the accurate citation of theses or dissertations with DOI or URL.

Apart from the above-mentioned modifications of the reference types and bibliography templates, I also changed the format of the bibliography author list from

Abbreviated Author List

☐ List all author names

☐ If or more authors, list the first author(s)

and abbreviate with: ☐ Italic

☒ If eight or more authors, list the first 6 authors, insert: and add the last author's name

For Subsequent Works by the Same Author

☒ Print the author list as defined above

☐ Omit the author list

☐ Replace repeated authors with:

to

☒ List all author names

☐ If or more authors, list the first author(s)

and abbreviate with: ☐ Italic

☐ If eight or more authors, list the first 6 authors, insert: and add the last author's name

For Subsequent Works by the Same Author

☒ Print the author list as defined above

☐ Omit the author list

☐ Replace repeated authors with:

for the accurate citation of works with eight or more authors according to the APA 7th style of writing. That is to say, I checked *List all the author names* option instead of *If eight or more authors, list the first six authors, insert: , . . . and add the last author's name* in the APA 7th output style bibliography author list.

Library Management of the Sources

The management of the sources refers to the task of appropriate selection of the reference types, and accurate entry of the information to the fields for the chosen reference types. With the modification as described in the above section, the strategic management of sources in the EndNote library produces the intended citations. In this section, I discuss how to manage the sources assigned to the basic reference types: Book, Book Section, Edited Book, Journal Article, Thesis, ProQuest Thesis, and Unpublished Work. The discourse on each of the reference types as themes includes the sources that I assigned to the reference type, and the way I entered the data into the fields associated with the selected reference type in order to bring about the accurate in-text and end-text citations, with especial focus on the latter.

Book


Book as an EndNote reference type with the modified APA 7th style includes any authored book with or without editor credited on the book cover, and with or without digital object identifier (DOI) or uniform resource locator (URL). This excludes edited books (without author), edited dictionaries (without author-wise entries), and book chapters.

To manage the reference of an authored book without editor, and DOI or URL, first, I selected Book from the drop down menu of Reference Type on the top of the reference window of the EndNote library. Then, I entered the data under the reference fields: Author, Year, Title, Place Published, Publisher, and Edition in a way as shown in the screenshot in Figure 1, for example, so as to produce accurately formatted in-text and end-text citations of the work in a word document.

Figure 1

Entries in the Reference Fields for the Authored Book Without Editor

3/3/2023 9:43:33 AM

Reference Type: Book 

Author
Baker, Colin

Year
2011

Title
Foundations of bilingual education and bilingualism

Place Published
Bristol

Publisher
Multilingual Matters

Edition
5th

The entries in the reference fields in Figure 1 imply that the Author field should be entered in the format of ‘Surname, First Name’ (i.e., no abbreviation); the title of the book should be typed in sentence case; the place of publication and publisher are typed as proper nouns; and the edition is marked with ordinal number. Even if the APA 7th format does not need publisher, it is desirable to mention in the library so

that the citation can be changed into other formats, such as APA 6th that includes the publisher. When we import the reference from any database, we have to check whether the information under each of the relevant fields is accurate as such, and should edit accordingly in the reference window if necessary. The edition is marked only if it is other than the first edition.

As a result of this input in the reference window as shown in figure 1, the preview of the reference citation in the EndNote library appears as:

Baker, C. (2011) . *Foundations of bilingual education and bilingualism* (5th ed.) . Multilingual Matters.

When this reference is cited from the EndNote library in a word file, the in-text citation appears in the place where the source is cited, and the reference citation appears in the reference list in the intended place in alphabetical order in the list. Its citation from the EndNote library in isolation appears in the following format:

3/3/2023 7:55:37 AM

(Baker, 2011)

Baker, C. (2011). *Foundations of bilingual education and bilingualism* (5th ed.). Multilingual Matters.

For the authored book with editor credited on the book cover and without DOI or URL, I also filled the Editor field as shown in the screenshot in Figure 2.

Figure 2

Entries in the Reference Fields for the Authored Book with Editor

Reference Type: Book

Author
Heidegger, Martin

Year
2005

Title
Introduction to phenomenological research

Place Published
Bloomington

Publisher
Indiana University Press

Editor
John Sallis

Translator
Daniel O. Dalstrom

The filled reference fields in Figure 2 indicate that the authored book has an editor as well as a translator. In such a case, we fill in all the three fields: Author, Editor, and Translator. Such entry in the reference fields produce the citation as:

(Heidegger, 2005)

Heidegger, M. (2005). *Introduction to phenomenological research* (D. O. Dalstrom, Trans.; J. Sallis, Ed.). Indiana University Press.

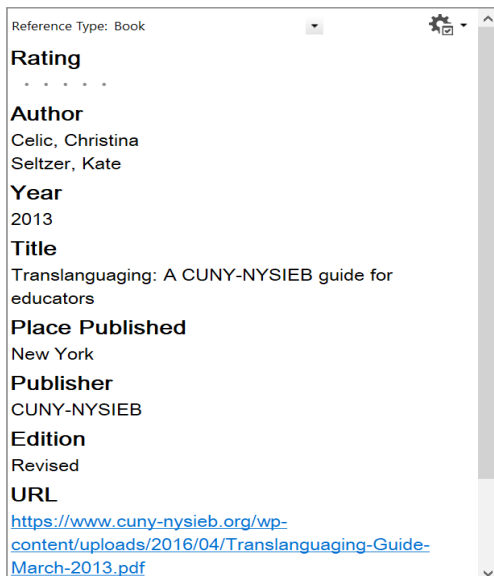
This citation including the previous example of citation is accurate as per the APA 7th style of writing, that is, APA (2020). The default parenthetical in-text citation can be edited as required depending on the context of the citation, the detail of which does not come under the scope of this paper.

If an authored book has its DOI or URL, we also have to fill in the concerned field available in the reference window. Figure 3, as an example, shows how I enter the input in the reference fields for managing citation of an authored book with URL. The figure also shows that I filled in the reference fields: Author, Year, Title (i.e., title of the book), Place Published, Publisher, and URL. In addition, it shows the ISBN mentioned. This information has been automatically imported from the database when managing the reference in the EndNote library through Google Scholar. This provides extra information, but does not appear in the citation, and hence not necessary to remove.

For managing the citation of any sources with both DOI and URL, mention only DOI or both in the reference window since even in the latter case, only DOI appears in the reference citation as per APA (2020). If there is only URL, mention it.

Figure 3

Entries in the Reference Fields for the Authored Book with URL



The screenshot shows the 'Reference Type: Book' window in EndNote. The fields are filled as follows:

- Rating:**
- Author:** Celic, Christina
Seltzer, Kate
- Year:** 2013
- Title:** Translanguaging: A CUNY-NYSIEB guide for educators
- Place Published:** New York
- Publisher:** CUNY-NYSIEB
- Edition:** Revised
- URL:** <https://www.cuny-nysieb.org/wp-content/uploads/2016/04/Translanguaging-Guide-March-2013.pdf>

After saving these entries in the fields, the citation of the book in a word file from the EndNote library produces the in-text and end-text citations as follows:

(Celic & Seltzer, 2013)

Celic, C., & Seltzer, K. (2013). *Translanguaging: A CUNY-NYSIEB guide for educators* (Revised ed.). CUNY-NYSIEB. <https://www.cuny-nysieb.org/wp-content/uploads/2016/04/Translanguaging-Guide-March-2013.pdf>

Book Section




In Book Section reference type in the EndNote reference window, I keep “edited book chapter” (see APA, 2020, p. 295) with or without DOI or URL of the book. The edited multiple-authored (encyclopedic) dictionary also fits in with Book Section. For the management of the citation of a book section without DOI or URL (of the book) in the EndNote library, I selected Book Section from Reference Type on the top of the reference window, and I entered the data under the reference fields: Author, Year, Title, Editor, Book Title, Place Published, Publisher, Pages and Edition (if any) as shown in the screenshot in Figure 4, for example, to bring about accurate citation of the book section.

In Figure 4, the reference field Title refers to the title of the book chapter, which is typed in sentence case as the title of the book written under Book Title in the figure. The figure shows that in Book Section, the fields such as Editor and Pages also are filled in. If there are multiple editors as shown in the figure, we should put down the name of only one editor per line preferably in the format of full name as given in the book. Under the slot of Pages, we indicate the initial and final pages of the chapter separating them by an en dash (–) with no space before and after it. Note that this no-space-before-and-after format is not clearly seen in the reference window, but it clearly appears in the citation in a word file.

Figure 4

Entries in the Reference Fields for the Book Section without DOI or URL

3/4/2023 3:03:57 PM

Reference Type: Book Section   

Author
Bell, Lee Anne

Year
2016

Title
Theoretical foundations for social justice education

Editor
Maurianne Adams
Lee Anne Bell
Diane J. Goodman
Khyati Y. Joshi

Book Title
Teaching for diversity and social justice

Place Published
New York

Publisher
Routledge

Pages
25 - 54

Edition
3rd

Such an entry of the information in the reference fields selecting Book Section from the drop down menu of the Reference Type results in the following preview of the reference citation in the EndNote library:

Bell, L. A. (2016). Theoretical foundations for social justice education. In M. Adams, L. A. Bell, D. J. Goodman, & K. Y. Joshi (Eds.), *Teaching for diversity and social justice* (3rd ed., pp. 25- 54). Routledge.

While citing this reference from the EndNote library, the in-text citation along with the corresponding end-text citation appears as follows in their respective positions.

3/3/2023 9:56:23 AM

(Bell, 2016)


Bell, L. A. (2016). Theoretical foundations for social justice education. In M. Adams, L. A. Bell, D. J. Goodman, & K. Y. Joshi (Eds.), *Teaching for diversity and social justice* (3rd ed., pp. 25–54). Routledge.

For the management of citation of a book section or “edited book chapter” (APA, 2020, p. 295) with DOI or URL of the book, we have to fill in the fields as well except the ones filled in for the book section without DOI or URL. The screenshot in Figure 5 shows how I entered the required information in the fields related to the reference type, more specifically, the book section with URL.

Figure 5 shows that all the reference fields for the book section with URL are common to that for the book section without URL except URL in addition to the former ones. If there is DOI, it is mentioned instead of URL.

Figure 5

Entries in the Reference Fields for the Book Section with URL of the Book

Reference Type: Book Section	
Author	
Chaiklin, Seth	
Year	
2003	
Title	
The zone of proximal development in Vygotsky's analysis of learning and instruction	
Editor	
Alex Kozulin	
Boris Gindis	
Vladimir S. Ageyev	
Suzanne M. Miller	
Book Title	
Vygotsky's educational theory in cultural context	
Place Published	
Cambridge	
Publisher	
Cambridge University Press	
Pages	
39- 64	
URL	
https://books.google.com.np/books?id=mfCHutwHT-cC	

After saving the input in the reference window as shown in Figure 5, the preview of the reference citation in the EndNote library appears as:

Chaiklin, S. (2003) . The zone of proximal development in Vygotsky's analysis of learning and instruction. In A. Kozulin, B. Gindis, V. S. Ageyev, & S. M. Miller (Eds.) , *Vygotsky's educational theory in cultural context* (pp. 39- 64) . Cambridge University Press. <https://books.google.com.np/books?id=mfCHutwHT-cC>

Its citation from the EndNote library in a word file creates an accurate citation following APA (2020) as follows:

(Chaiklin, 2003)

Chaiklin, S. (2003). The zone of proximal development in Vygotsky's analysis of learning and instruction. In A. Kozulin, B. Gindis, V. S. Ageyev, & S. M. Miller (Eds.), *Vygotsky's educational theory in cultural context* (pp. 39–64). Cambridge University Press. <https://books.google.com.np/books?id=mfCHutwHT-cC>

Similarly, the screenshot in Figure 6 shows how I entered the required input into the fields for the book section with DOI of the book assigned to the reference type Book Section. The figure shows that the DOI should be typed starting with the digit 10 in the given slot. Other information such as <https://doi.org/> systematically appears preceding the digit in the EndNote APA 7th output style. The figure further shows that the editors' names can be entered in the format of how we enter the authors' name though they can be entered as they appear in the cited source as shown in the former figures.

The output preview of the reference citation as a result of the management of the input as shown in Figure 6 can be seen as:

Garcia, O., & Lin, A. M. Y. (2017) . Extending understandings of bilingual and multilingual education. In O. Garcia, A. M. Y. Lin, & S. May (Eds.) , *Bilingual and multilingual education* (3rd ed., pp. 1- 20) . Springer. <https://doi.org/10.1007/978-3-319-02258-1>

and the citation in a word file from the library results in:

(Garcia & Lin, 2017)

Garcia, O., & Lin, A. M. Y. (2017). Extending understandings of bilingual and multilingual education. In O. Garcia, A. M. Y. Lin, & S. May (Eds.), *Bilingual and multilingual education* (3rd ed., pp. 1–20). Springer. <https://doi.org/10.1007/978-3-319-02258-1>

Figure 6

Entries in the Reference Fields for the Book Section with DOI of the Book

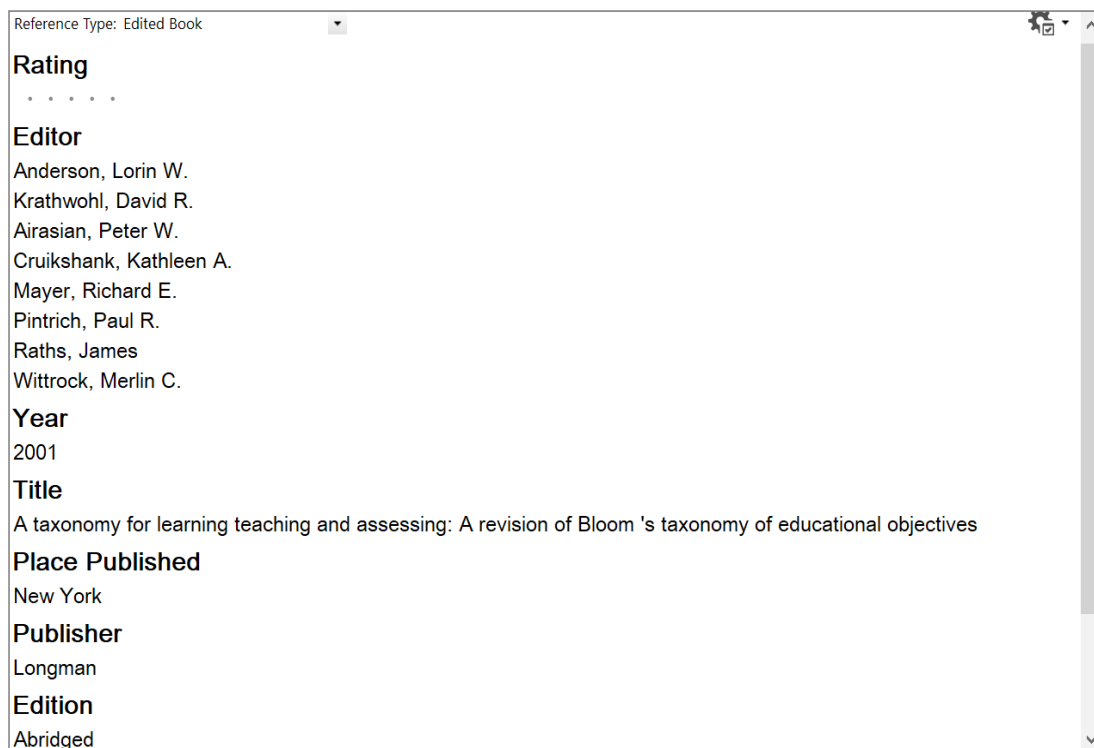
Reference Type: Book Section
Author Garcia, Ofelia Lin, Angel M. Y.
Year 2017
Title Extending understandings of bilingual and multilingual education
Editor Garcia, Ofelia Lin, Angel M. Y. May, Stephen
Book Title Bilingual and multilingual education
Place Published Cham
Publisher Springer
Pages 1 - 20
Edition 3rd
DOI 10.1007/978-3-319-02258-1

Edited Book

I keep the books with editor(s) but no author at all under this reference type in the EndNote reference window. The edited book may or may not have DOI and URL. What fields are associated with this reference type, and how I enter the input into each of the fields to produce accurate citation of the source in accordance with the APA 7th style of citation, can be seen in Figure 7.

Figure 7

Entries in the Reference Fields for the Edited Book without DOI or URL



The screenshot shows a reference entry form for an 'Edited Book'. The form is titled 'Reference Type: Edited Book' and includes a 'Rating' section with five stars. The 'Editor' section lists seven names: Anderson, Lorin W.; Krathwohl, David R.; Airasian, Peter W.; Cruikshank, Kathleen A.; Mayer, Richard E.; Pintrich, Paul R.; Rath, James; and Wittrock, Merlin C. The 'Year' is 2001. The 'Title' is 'A taxonomy for learning teaching and assessing: A revision of Bloom 's taxonomy of educational objectives'. The 'Place Published' is New York. The 'Publisher' is Longman. The 'Edition' is Abridged.

Field	Value
Reference Type	Edited Book
Rating	*****
Editor	Anderson, Lorin W. Krathwohl, David R. Airasian, Peter W. Cruikshank, Kathleen A. Mayer, Richard E. Pintrich, Paul R. Rath, James Wittrock, Merlin C.
Year	2001
Title	A taxonomy for learning teaching and assessing: A revision of Bloom 's taxonomy of educational objectives
Place Published	New York
Publisher	Longman
Edition	Abridged

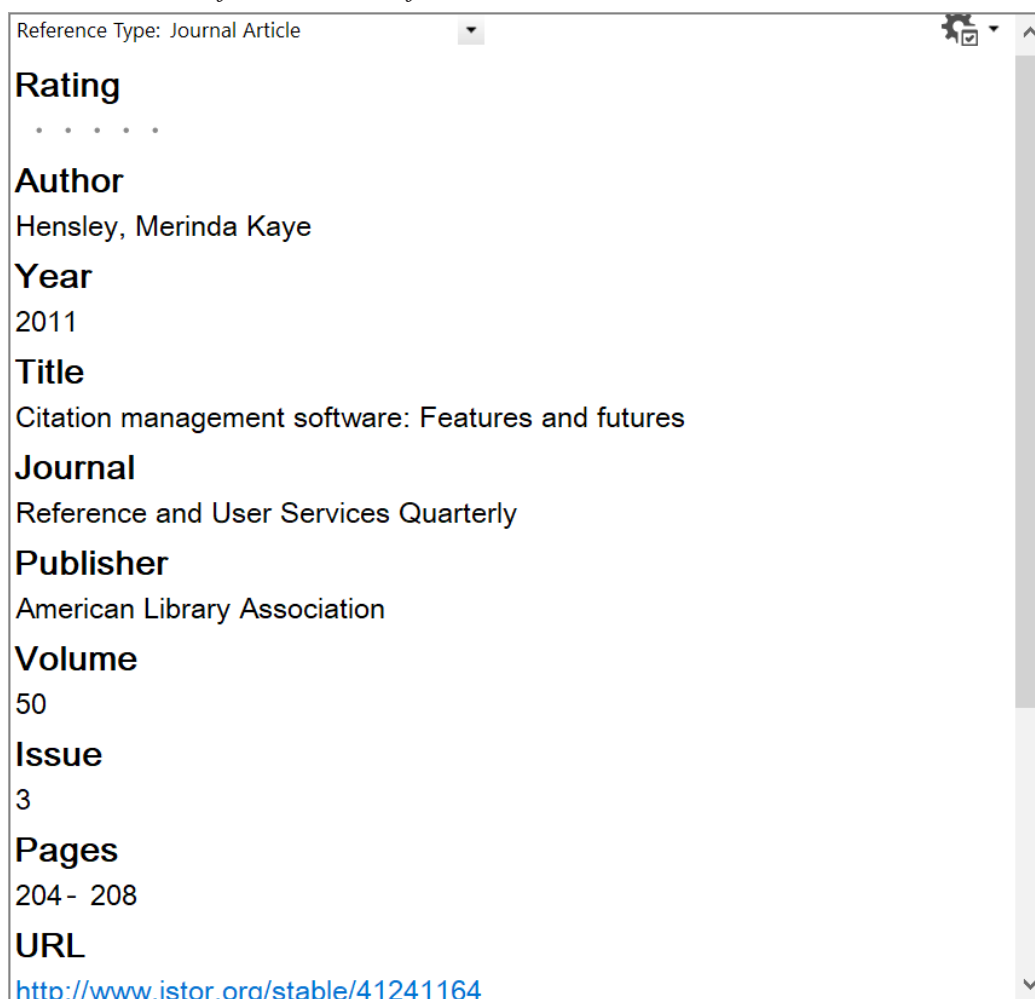
In the edited book, the editor(s) appear in place of the author(s) in citations, therefore preferable to enter the editors' names as that of the authors (i.e., in the form of 'Surname, Full Forename' as far as the full form is available) as shown in Figure 7.

Journal Article

With the modified APA 7th output style, I assign any article in a journal with or without DOI or URL to Journal Article reference type. The fields required to be filled in for this reference type include: Author, Year, Title (i.e., title of the article), Journal (i.e., Journal name), Volume, Issue, Pages, and DOI or URL (if any) as shown in Figure 8.

Figure 8

Entries in the Reference Fields for the Journal Article with URL



The screenshot shows a reference entry form with the following fields and values:

- Reference Type:** Journal Article
- Rating:** Five empty stars.
- Author:** Hensley, Merinda Kaye
- Year:** 2011
- Title:** Citation management software: Features and futures
- Journal:** Reference and User Services Quarterly
- Publisher:** American Library Association
- Volume:** 50
- Issue:** 3
- Pages:** 204 - 208
- URL:** <http://www.istor.org/stable/41241164>

Figure 8 shows that the title of the article is entered into the Title slot in sentence case while the name of the journal is entered into the slot of Journal in title case. Since this reference has been imported directly from the database, the reference window also shows the name of the publisher, which is not necessary to remove. This does not appear in the citation but provides extra information about the journal. Volume and Issue in the figure refer to the volume and issue numbers of the journal. Under Pages, the initial and final pages are mentioned separating them by an en dash without space before and after it though this format is not clearly seen in the reference window and the preview of the reference citation of the EndNote library. The URL field is filled in with URL if any. If there is DOI of the journal, it is entered into the corresponding field instead of URL.

After saving the management of the information as shown in Figure 8, the bibliography preview window shows the following reference citation:

Hensley, M. K. (2011) . Citation management software: Features and futures. *Reference and User Services Quarterly*, 50 (3) , 204- 208. <http://www.jstor.org/stable/41241164>

and the citation of the work in a word file produces the following result:

(Hensley, 2011)

Hensley, M. K. (2011). Citation management software: Features and futures. *Reference and User Services Quarterly*, 50(3), 204–208. <http://www.jstor.org/stable/41241164>

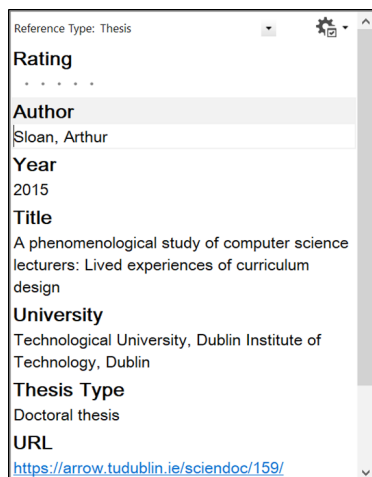
Thesis

I have modified the template of Thesis reference type in such a way that the theses or dissertations with DOI or URL can be assigned to it in order to produce accurate format of citation. For this reference type, I enter the required information into the field of Author, Year, Title, University, Thesis Type, and DOI or URL as shown in Figure 9.

Figure 9 further shows that the title of the thesis is entered into the Title field in Sentence case; University and Thesis Type are indicated; and if there are both DOI and URL available, we can mention only DOI to achieve the accurate format of the citation. If there is no DOI, URL is mentioned in the corresponding field.

Figure 9

Entries in the Reference Fields for the Thesis with URL



Reference Type: Thesis

Rating
.....

Author
Sloan, Arthur

Year
2015

Title
A phenomenological study of computer science
lecturers: Lived experiences of curriculum
design

University
Technological University, Dublin Institute of
Technology, Dublin

Thesis Type
Doctoral thesis

URL
<https://arrow.tudublin.ie/sciendoc/159/>

Such an entry into the fields causes to appear the following preview of the reference citation in the EndNote library:

Sloan, A. (2015). *A phenomenological study of computer science lecturers: Lived experiences of curriculum design* [Doctoral thesis, Technological University, Dublin Institute of Technology, Dublin]. <https://arrow.tudublin.ie/sciendoc/159/>

and its citation in a word file appears to be:

(Sloan, 2015)

Sloan, A. (2015). *A phenomenological study of computer science lecturers: Lived experiences of curriculum design* [Doctoral thesis, Technological University, Dublin Institute of Technology, Dublin]. <https://arrow.tudublin.ie/sciendoc/159/>

Unpublished Work

I assign the unpublished (i.e., not available from any repository or preprint archive) master or doctoral thesis or dissertation including any other unpublished research report prepared for or submitted to any institution to Unpublished Work. Figure 10 is a showcase for the management of required information in the fields for the reference type Unpublished Work.

Figure 10

Entries in the Reference Fields for Unpublished Doctoral Dissertation

Reference Type: Unpublished Work

Rating
.

Author
Phyak, Prem

Year
2016

Title of Work
For our cho:tlung': Decolonizing language ideologies and (re) examining multilingual education polcies and practices in Nepal

Institution
University of Hawai'i, Manoa

Type of Work
Unpublished doctoral dissertation

Abstract
thesis


File Attachments

Phyak, P.
(2016). 'For ...

Figure 10 shows that Title of Work refers to the title of the thesis; Institution refers to the name and address of the university under the support of which the concerned research had been carried out; and Type of Work can include unpublished doctoral or master thesis or dissertation. The figure also showcases the way of entering

the information into the respective fields for the reference type. After saving this entry in the EndNote library, the preview of the reference citation appears as:

Phyak, P. (2016). *For our cho:tlung': Decolonizing language ideologies and (re) examining multilingual education policies and practices in Nepal* [Unpublished doctoral dissertation]. University of Hawai'i, Manoa.

and the citation of this work in a word document appears in the following format:



(Phyak, 2016)

Phyak, P. (2016). *For our cho:tlung': Decolonizing language ideologies and (re)examining multilingual education policies and practices in Nepal* [Unpublished doctoral dissertation]. University of Hawai'i, Manoa.

In some other unpublished works the institution may be other than a university, and the type of work may be research or mini-research report and so on. How the management of such work type in the reference window appears to be can be reflected in Figure 11.

Figure 11

Entries in the Reference Fields for Unpublished Mini-Research Report

Reference Type: Unpublished Work	
Rating	
Author Sharma, Uma Nath	
Year 2019	
Title of Work Teachers' beliefs about linguistic diversity as a resource	
Institution Tribhuvan University, Research Management Cell (RMC) , Mahendra Ratna Campus, Tahachal, Kathmandu	
Type of Work Unpublished mini-research report	
File Attachments  Uma's Research re...	

The citation of this work in the APA 7th output style of the EndNote appears as:

(Sharma, 2019)

Sharma, U. N. (2019). *Teachers' beliefs about linguistic diversity as a resource* [Unpublished mini-research report]. Tribhuvan University, Research Management Cell (RMC), Mahendra Ratna Campus, Tahachal, Kathmandu.

ProQuest Thesis

The reference type ProQuest Thesis does not appear in the original list of EndNote reference types as I have already stated. I have managed the bibliography template for this reference type in such a way that it (i.e., the template) gives accurate citation of the thesis or dissertation available from ProQuest Dissertations and Theses database. For getting the accurate output, we have to manage the required information in the EndNote library as shown in Figure 12, for example.

Figure 12

Entries in the Reference Fields for ProQuest Thesis

The screenshot shows the 'Reference Fields' window in EndNote for a 'ProQuest Thesis' entry. The fields are as follows:

Field Name	Value
Reference Type	ProQuest Thesis
Rating
Author	Vrooman, Michael D.
Year	2000
Title	The linguistic interdependence hypothesis and the language development of Yucatec Maya-Spanish bilingual children
University	Graduate School of the University of Massachusetts
Publication Number	8005210600
Thesis Type	Doctoral dissertation
Name of Database	Dissertation and Thesis
Database Provider	ProQuest
Language	

In Figure 12, Publication Number refers to the UMI No. given on the cover page of the dissertation or thesis, and Name of Database and Database Provider are always the same as shown in the figure since only the theses or dissertations available from the specified database are assigned to this reference type. The output preview of the reference citation of the work managed as shown in the figure appears to be:

Vrooman, M. D. (2000) . *The linguistic interdependance hypothesis and the language development of Yucatec Maya-Spanish bilingual children* (Publication No. 8005210600) [Doctoral dissertation, Graduate School of the University of Massachusetts]. ProQuest Dissertation and Thesis Global.

and the citation of this work from the EndNote library appears as follows:

(Vrooman, 2000)

Vrooman, M. D. (2000). *The linguistic interdependance hypothesis and the language development of Yucatec Maya-Spanish bilingual children* (Publication Number 8005210600) [Doctoral dissertation, Graduate School of the University of Massachusetts]. Dissertation and Thesis.

To sum up, this is how the references of the specified types of sources can be managed in the reference window of the EndNote library, and what can be the format of the resultant output in terms of the preview of the reference citation and citation in a word document with reference to APA 7th style of citation.

Conclusion

The results and their discussion show that with the slight medication of the original EndNote X9 reference types and the APA 7th output style, the strategic management of the sources assigned to some specified reference types in the EndNote reference window produces accurate citations of the sources in a word document. On this finding, it can be drawn that the EndNote can be modified as per our need; and with such a modification, the entry of the accurate data about the sources to be cited into the appropriate fields in the reference window of the EndNote library results in accurate citation of sources as per the intended style of citation. The other EndNote users can do everything with the XML file of the modified reference types imported and the new output style resulting from the modification added to the EndNote library. This article may function as a partial guideline for using the modified version of the EndNote.

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Vagle, M. D. (2018). *Crafting phenomenological research* (2nd ed.). Routledge.

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Tamba and Damphu in Tambakaiten as the Network of Tamang and Songs

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Abstract

Santabir Lama's *Tamba Kaiten* is a cultural documentation of Tamang community focusing especially in central region of Nepal, about cultural and religious rites and rituals through songs which are mentioned as *whai* and according to Macdonald (1983) *hvai*. *Tamba* is known as historian or cultural poet of Tamang who sings songs of genealogy, cultural rites and rituals along with different activities of daily lives and origin of the Earth and human beings. *Kaiten* is the document. Likewise, the *Damphu* is a musical instrument which has the most crucial role in singing and dancing. This research explores the network of Tamang culture and songs by *Tamba* from Bruno Latour's perspective of Actor-Network theory. The study of different issues around us is not possible only through social perspective which centralizes human beings; there is the need of scientific study to focus both on quasi-subjective and quasi-objective agents. The *Damphu* also completes *Tamba* to contribute the network of Tamang culture of *whai*. The study is significant to study hybridity of actors in Network theory which doesn't indicate only humans but also non-humans which play an avoidable role to complete a structure as being integral element.

Keywords: genealogy, historian, actor-network theory, quasi-subjective, hybridity

Introduction

Tamaba Kaiten Whai Rimthim: Tamang kaa Purkhouli Ritithiti ra Geet (*Tamang Folk Culture*), which is referred as only *Tambakaiten* throughout this paper, is an important documentation on Tamang community to keep the record of oral folk tradition. As Nepal's identity is related to diverse culture based on different ethnic, social, religious, geological backgrounds of Nepalese, it is necessary to investigate, research and record traditions and practices of all these communities. With the help of

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the book, this study explores the role of *Tamba* and *Damphu* as actors in the network of Tamang songs, *whai* by using Bruno Latour's Actor-Network Theory. This book was first published in 1959 AD from Darjeeling, though it was completed two years earlier, as a remarkable effort of Santabir Lama (Pakhrin), a governor of Illam at the time and later on he became a member of the National Panchayat. In the Preliminary of this book, he has mentioned about the major focused region for his study which is Eastern illaka 1 and 3, Western illaka 1 and 2, central region Sindhupalchowk and Kathmandu periphery which would help to understand and analyze the role of *tamba* as the actor in the social and cultural system of Tamang from this area. Dor Bahadur Bista (1980) has mentioned, "The Tamangs live in the high hills east, north, south and west of Kathmandu Valley" (p. 52) which indicates that Tamang inhabitation surrounds the valley from four directions. Likewise, David Holmberg (2017) has presented on "Ethnography, History, Culture: Enduring Oppositions and Creative Dynamism in Nepal" about Tamang in *The Mahesh Chandra Regmi Lecture 2017* as:

At that time, Tamang were largely considered outsiders, even aliens, from the perspective of the political and economic elite of Kathmandu and the district administrative centres. Many people feared Tamang and told me it was dangerous for me to think about working with Tamang. Nevertheless, I was hospitably welcomed into the western Tamang community of Mhanegang, a politically key village on the border between Nuwakot and Rasuwa districts to the west of the Trisuli River on a massif that rises up from the Salankhu river eventually to the Ganesh Himal, or as the Tamang call it, lhari (p. 3).

Which shows that the central hilly part of Nepal is important to study about Tamang culture and tradition.

RK Tamang (2016) has mentioned about the area of inhabitation as *Tamsaling*, "From his collection and study, Santabir found out that there is diversity in the practical aspect among the Tamang of these places but the *Rimthim* is similar. This indicates that *Tambakaiten* is important and it reflects the overall Tamang folk culture" which is the major geographical area of collection in *Tambakaiten*. There are different customs and traditions according to the places even within Tamang community but the central region is the prominent one for the study as it is the oldest area of Tamang civilization.

Tambakaiten is collected and written in Tamang language along with Nepali translation for further study. The first section of this book "Role" is written by Surya Bikram Gynawali, a renowned figure in Nepali literature from Darjeeling, India. He has compared the *whai* of Tamang folk culture to some of the Nepali songs. Buddhism is said to be spread in Nepal from China which is refuted in the edition of 2013 AD of this book in the section of Reformed Edition's Role by Santabir's successors. The

writing from this section claims that Buddhism was spread from Nepal to Tibet with the evidence of having 109 generations of Tamang Lamas in Nepal and Dalai Lama's only 13 generations. This indicates the *tamba* oral tradition of Tamang as ancient form of transferring knowledge and information.

There are many versions of *Tambakaiten* sung or written, the poet or historian's reflection is divided into many parts as it reflects the religious and cultural rites and rituals of Tamang community. At present, many separate books have been written and published regarding to different aspects of the culture. However, in this book, these different aspects of *whai* are headed with various topics, Macdonald (1983) in his article "The Tamang as Seen by One of Themselves" writes:

Rui means jat and chen "name". Cyopge means "eighteen". The genealogy (vamsavali) which describes the eighteen jat of Tamang is thus called Ruichen cyopge. Jikten means "compilation, essence of religion" and tamchyö means "book of sayings" (kurako pustak). The book in which the fundamentals of religion are consigned is, therefore, called Jikten tamchyö. Rama (gitko talsur: tal "hand-clap" + sur "musical note, melody, tune") is a book which contains rhythmic songs sung at marriage (p.130).

In this regard, *Tambakaiten* has variations of *whai* within it on different subject matter. It is a collection of songs by Tamba with the examples of the habits and customs of the Tamang, description of the family divinities, the story of creation and of nature and found songs in Tamang language. Besides, these subject matters, *whai* consists of important traditions and stories concerning the Tamang. RK Tamang (2016) clarifies the role of *Tamba* in various rites and rituals; he explains that *tamba* has irreplaceable in all the occasions and rites of Tamang from naming ceremony to cremation and *Ghewa* as death rites. He writes:

In Tamang society, marriage is an institution to unify two people from opposite gender and sex to continue the society. This institution must follow the procedure of *tamba*'s rites and rituals rather the state's law. If people haven't followed the right and complete procedure according to *tamba*, *tamba* conducts the proper marriage procedure on the dead bodies even after the death which later on validates the marriage of the people. This shows a strong role of *tamba* in marriage (Tamang, p. 3).

Tamba's role is unavoidable in marriage ceremony in Tamang community. The rites and rituals of the ceremony are instructed by *tamba* for bride and bridegroom through *whai* in marriage. After following a complete instruction by *tamba*, the marriage becomes complete and valid.

Tambakaiten begins with the definition of essential terms paraphrased in Nepali language including various posts which are found in Tamang communities to run different activities in different occasions; greetings used by the community; *khada*, a shawl as a form of respect; pong, recipients and list of conduct followed by Tamang community. *Whai* is not meaningless thus *Tamba Kaiten*'s *whai* section gives examples of different *whai* sung by *Tamba* especially offering of incense and rice in various occasions. Santabir is worried about the use of *whai* in meaningless and without any relevant context when *tamba* or other singers try to imitate other version of songs. He argues that *whai* has the capacity of giving important message or information to its listeners. Without the help of *tamba*, the culture, traditions and customs of Tamang would be disappeared.

Tamba is translated as *purkhyouli mannya* in this section which is translated as cultural respected person or hero. After this section, the songs by *tamba* are presented under the section of 'Whai'. *Tamba* sings *whai* in different occasions about different subject matter depending on the type of occasions. These *whai* is sung accompanied with the beatings of *Damphu*. Therefore, the *Damphu* is irreplaceable element of *Tambakaiten* or *whai*. *Tamba* always begins *whai* offering the respect or homage to mother in different occasions such as marriage ceremonies and reunion of parents and friends. Likewise, *tamba* ends their *whai* with the formula, Macdonald (1983) explains:

mannalai hai dannala krasya nagri yunala; mannala means "golden ashes" and dannala means the triphala (that is to say, the three myrobolans: amalo, barro and harro); krasya means in Tamang "brains" and nagri "inside". The final formula, therefore, means: "May the golden ashes and the three myrobolans go into the brain" (p. 134).

This indicates prevalence of necessary pattern in *tamba*'s *whai* in the starting and ending both. The first and second *hwai* are related to giving offerings of incense and rice to deities of different directions, underworld and ancestors.

The next section is about the description of the process of making the *Damphu* by an ancestor named Peng Dorje who wants to make any musical instrument to pass his time when he is alone. Macdonald (1983) elaborates:

However, Pendorje killed a wild goat (ghoral). With the skin of this animal, he apparently covered one head of his drum, the frame of which was made ambursing (koiralo) wood; bamboo pegs were used for stretching the skin. The sound of the drum was like the voice of Sarasvati. (p.135).

Peng Dorje was the first person to make the *Damphu* in any *tambakaiten*. After making

the *Damphu*, he plays it, sings song and performs dance according to its beatings. In this regard, he is considered as the first *tamba* in Tamang. However, there is no any particular evidence to prove him as the first *tamba*. *Tamba* has the songs about the origin of the earth and human kinds as well, Macdonald (1983) describes:

At the time when the sky and the earth were without form and invisible, the Dorje Gyaram (vajra) of the air was formed. This Dorge gyaram filled the whole universe; above it was created fire, and on the fire a lake of water. On the lake, white foam, as it became solid, was transformed into earth (mato). Next, the mountain Sumeru was created. (p.135)

which indicates *tamba* having knowledge about the origin of the Earth and *whai*s about it along with the description of nations in the north and south of Nepal or land of Tamang. It describes the source of river Ganges and other rivers as well under the topic.

Tamba sings *whai* about the origin and settlement of different subgroups within Tamang community. For this purpose, they are also known as the historians. “Ruichen Chyopge laa whai” is the song about the origin of different surnames of the community which helps to trace back the history of the groups. Tamang community has the concept of *rui* to denote different clans within (Lama, 2012) which has different narratives of origin and migration. The genealogy is also presented through *whai* by *tamba* which helps to gain knowledge on history of the community. Macdonald (1983) translates:

I can explain the genealogy. I understand the language of signs, and I can make it understood. I am here among you, not to teach you the seasons and how to offer fruits at each of them, but to tell you, if you wish it the hvai of the genealogy as our ancestors relate it. After the Tamang text of the “Eighteen Names of the Rui” come recommendations in Tamang, and in Nepali translation, as how to worship the kuldevta. (p.137)

There is the list of places especially where the different *rui* of Tamangs had established their palaces and settled the rule and *rui phola*. Likewise, *tamba* has knowledge about the destruction of the world and recreation as well, Macdonald (1983) translates, “At the end of time, seven suns and seven moons shine in the sky. All the forest dries up. Stone and earth melt like wax. The earth becomes a lake. The god again makes the earth. The green *dubo* grows and the *uniu* flowers” (p.137). *Tamba* is not only aware about the ethnic history and culture rather the origin as well as destruction of the world too. This book *Tambakaiten* is divided into thirteen topics written about introduction of Tamang community and their customs and traditions through songs along with other information.

This research wants to inquire the role of *tamba* and the *Damphu* in different cultural activities to complete the system along with adequate information and relation to Actor-Network Theory by Bruno Latour. With the sufficient background knowledge about the different *whai* or songs of *tamba*, this study will be able to establish the role of *tamba* and the *Damphu* as actors to construct Tamang culture and folk literature.

Literature Review

Indigenous literature has been marginalized from the mainstream of dissertation and studies. Therefore, ample research has not been conducted in Tamang culture and literature. However, some of the studies have emerging and are emerging in this area of knowledge. Despite of this, the works in *Tamba Kaiten* is limited. In his research work *Essays on the Ethnology of Nepal and South Asia*, Alexander W. Macdonald (1983) has translated, interpreted and explained *Tamba Kaiten* by Santabir in detail as much as he could under the topic “The Tamang as Seen by one of themselves”. He has started this section with the translation of “Role” by Suryabikram Gynawali, “Fifteen years after the opening of Nepal to western research, we still have at our disposal only one professional anthropological monograph concerning a population of the hill areas” (Macdonald, 1983, p. 127) with background set in the context to explore about the community residing in the central part of Nepal. It further describes as, “In view of the weakness of our sources, it seems useful to draw attention to a little book which may interest anthropologists and tibetologists and which is entitled *Tamba Kaiten*: its Nepalese subtitle “Genealogy, habits, customs and songs of the Tamang” indicates its content” (p.127) which illustrates that the necessary resources to study about Tamang community, one of the important ethnic and indigenous group, are inadequate. Thus, this document is regarded as very significant internal resource of Tamang written by Tamang. Likewise, in Tamang society, there are varieties of dances but one of the most important and ethnographically identified folk dances is *Damphu Naach* which is discussed in Santabir’s *Tambakaiten* with the portrayal of different phases of life through songs and dances with the beatings of *Damphu* (Lama, 2012). Usually, *Damphu Naach* is performed in marriage and hair cutting ceremony, *Chhewar* and other festivals. Similarly, RK Tamang (2016) has written a thesis entitled *The Study of Popular of Tradition of Multiple Heroes in Tamang Community (In the Context of Khotang, Mude*, in which he discusses the roles of different cultural heroes of Tamang tradition; he writes which is translated as:

The plural heroes can be studied by classifying into two major parts as main and subordinate. The nature of work and knowledge are two bases for such study. *Tamba*, *Bonbo*, *Lama* and *Choho* are the major Tamang heroes. Their presence is must in every rites and rituals. Likewise, sub-heroes are studied as enacted and voluntary. *Asyang*, *mha*, *maiti*, *dajubhai* are enacted sub-heroes

whereas katholba, laiba, chhyangbasya are voluntary functionary sub-heroes with their permanent social responsibility. (p.4)

Among several other cultural heroes in Tamang tradition, *Tamba* is one of the permanent and prominent one. *Tamba* plays very important role in every rites and rituals of a Tamang individual along with communal activities.

Methods and Procedures

Actor-Network Theory is the major theoretical approach which is used as qualitative research design in this study. The different elements of the society have studied as either totally as social entity or totally as technological entity which both of them have opposite perception for one another. In the study of social entity, social actors are determined as the object of political economy or the social construction of interest. Technology emerges and develops on the basis of its own internal need and beyond human control which contributes as one of the major elements in a network. Any complete network is an assemblage of both human and non-human actors. The network is a combination of hooked actors which works on itself and actors are the agencies contributing to make change in the network for its betterment. Therefore, Actor-Network Theory allows both of these models of entities, social and technological to develop them as actors. This theory is one of the streams of Social Construction of Technology which is recently introduced movement in the history and sociology as Social and Technology Studies. This type of theory is related to French sociologists of science Bruno Latour and Michel Callon with an aim to use the concept of actors, autonomous individuals who are corporate or collective are social units. This paper uses the concept of accepting both human, *Tamba* and non-human object, *Damphu* as the actors to complete a network the network of Tamang culture and songs. *Tambakaiten* is an important cultural identity and tradition of Tamang community and there are many elements which support this network. There are many actors which play their own role to continue and preserve this custom and *Tamba* is the most important one but other actors are also mandatory according to their position in the process. As a whole, a written text of oral tradition, *Tambakaiten* is evaluated and analyzed on the basis of Latour and Callon's concept of hybrid nature of actors in Network theory.

Results and Discussion

Actor-Network Theory

Actor-Network Theory is developed by French sociologists Bruno Latour and Michel Callon collaboratively as the hybridity of both cultural and natural entities for study. Latour's Network theory helps to show the social relationship between human and non-human beings as equal actors in network to complete a certain goal

thus maintaining an equal role by both biotic and abiotic beings (Stalder, 1997). Therefore, Actor-Network theory has an objective to show the need and importance of different types of actors to fulfill the work of a network. The Network theory is not about only one link or chain rather it is chaining itself to the different actants whose contributions are important and are transformed into actors after chaining themselves in a network (Latour, 2007). This illustrates Actor Network Theory is the combination of both social and natural elements which are network themselves to bring result on something. Another book by Latour himself *Reassembling the Social: An Introduction to Actor-Network-Theory* (2005) provides the traditional study of society as sociology of society and new study as sociology of association with the name Actor-Network-Theory which has:

A name that is so awkward, so confusing, so meaningless that it deserves to be kept. If the author, for instance, of a travel guide is free to propose new comments on the land he has chosen to present, he is certainly not free to change its most common name since the easiest signpost is the best—after all, the origin of the word ‘America’ is even more awkward. I was ready to drop this label for more elaborate ones like ‘sociology of translation’, ‘actant-rhizome ontology’, ‘sociology of innovation’, and so on, until someone pointed out to me that the acronym A.N.T. was perfectly fit for a blind, myopic, workaholic, trail-sniffing, and collective traveler (p. 9)

This shows the struggles of Latour to give appropriate name to his newly propounded theory. After having deep thinking about the name, he decided to use as Actor-Network-Theory and short form of A.N.T. Despite of almost all the scholars’ agreement about humanity reaching to modernity, Latour claims that humans use ‘purist’ concept on everything especially to distinguish between natural and cultural. However, nothing can be studied in a pure form, there is no purity. Thus, while studying about any subject, it must use hybrid mode of thinking such as culture-nature, then only we will be able to study a field or topic from different angles otherwise, we have never been able to modernize (Latour, 1993). Therefore, Actor Network Theory is theoretical approach of hybridity of nature and culture and at the same time, distinction between these natural and cultural entities on ontological stances.

There are different concepts this research would clarify in this topic. First of all actor is the most important concept in Actor-Network-Theory, “Actors are “entities that do things” (Latour, 1992, p. 24). In this regard, actor is anyone or anything that does any action. We can further define if as whatever acts or shifts action. Thus, an actant which has no social value but is a natural entity can achieve the status of actor once it acts in a particular network. Network which is defined as, “group of unspecified relationships among entities of which the nature itself is undetermined” (Callon, 1993, p.263), is

another prominent term used in this theory after actor. It ties together two systems of alliances which are classified as people and things; which further leads to “sociogram” and “technogram”. Both of the alliances play an important role in network. These two are cordially constitutive, there is no act of actor without any network and a network is made of actors. Intermediary is anything which passes among the actors in the course of stable transactions. In this sense, intermediary is the language of the network which is used by the actors for their communication. In this way, with different concepts and terms ANT studies biotic and abiotic entities for effective measure to solve various problems.

Role of Tamba as Actor

In *Tambakaiten*, the *tamba* plays the role of social or cultural actor. On the basis of Actor-Network-Theory, the network is the whole Tamang culture and tradition in which there is the practice of singing *whai*. Singing *whai* is very important element of social system in Tamang community because not only *tamba* but common people also sing it in different occasions, festivals, rites and even during every day activities.. Macdonald (1983) describes:

Among the songs of the ancient villages of Nepal, those of the Tamang are not only interesting and beautiful; they are also instructive. They are appreciated in Nepalese society. The Tamba who composed these songs conserved them for Tamang society. It is the duty of every Tamang to seek out the *hvai* composed by Tamba (p.130)

It indicates the importance of *whai* in the community and significance of *tambain* this network. *Whai* has generated a condition to communicate among the *tamba*. The other onlookers or audience when *tamba* sings *whai* are enclosed within the Black Box, an important concept in ANT. They take participation in the *whai* but not as the ones singing rather listening. *Tamba* is unreplaceable actor in *Tambakaiten* whose contribution creates its existence.

Role of Damphu as Actor

The Damphu is an important musical instrument used while singing *whai* by *tamba* in *Tambakaiten*. It is a technological actor which has crucial role to complete the network of *whai* in Tamang culture and at the same time, it is objective. Thus, it is included in “technogram”. However, the *Damphu* is used by *tamba* as an actor to sing *whai* but its role is unavoidable that it should not be missed while singing songs. Otherwise, the *whai* is never complete. It makes *tamba*, a social actor more powerful and vocal in the network. Peng Dorje, a supposed to be the first *tamba* in Tamang tradition, invented the *Damphu* to sing *whai* for himself. He was able to create it by

using different resources from various geographical regions of Nepal. After he made it, he started to sing the *whai* along its beats and dance due to his uncontrollable happiness. Santabir has written a full topic only about the procedure of making *Damphu* by Peng Dorje in his *Tambakaiten*. A *tamba* can't initiate any *whai* during any occasion without *Damphu*. *Tamba*, *Damphu* and *whai* are interconnected with inseparable way in the network of Tamang tradition and culture.

Conclusion

This research helps us to see the different aspects of our society from both cultural and natural perspectives even using technological or non-human entities as actors because they also shift the action. French sociologists and philosophers Bruno Latour and Michel Collin have propounded very useful and necessary theoretical concept to tackle different emerging social problems. It seems that the society is consisted of either strict social entities of human beings with the ability to think and act own her/his own. However, the existence of natural or abiotic elements of our surrounding also affect a great deal on the environment.

Tamba Kaiten, an indigenous folk literature has been able to be studied by using ANT of Bruno Latour and Michel Collin. The prominent entities of *tambakaiten*, *tamba* and the *Damphu* are the major and most important actors within the network of Tamang culture and practice. Nepal is rich in different indigenous tradition and culture, thus, creating innumerable opportunities for other researchers to conduct study by using different theoretical approaches.

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Exploring Subaltern Agency in Angelou's *I Know Why the Caged Bird Sings*

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Abstract

The research paper investigates on the representation of American society that is constituted by the hegemonic social, political and cultural structures of oppression to delimit the identity of African-American women in Angelou's *I Know Why the Caged Bird Sings: An Autobiography*. Despite being subordinated by the whites; black women have gained central position in the socio-political spheres in America. This research paper analyzes the bitter experiences of a black girl, Maya Angelou, who is continuously dominated and sexually exploited by white people, and her struggle to overcome the constraints in the existing prejudiced society. The paper uses analytical method and library research in data collection. To analyze the experiences and overcoming of constraints on the part of black women, the research applies the theoretical insights of Gramsci, Fanon, Abrams and Tamen on subaltern, identity, agency and resistance. Broadly, the paper explores the subordination of African-American women and their sheer willpower to resist socio-cultural oppressions for their self-definition as well as social change in America. The research concludes that identity of the subaltern always remains in flux. Proper representation of the subaltern is essential to redefine their identity and to establish them as autonomous individuals in the society.

Keywords: autonomy, identity, interpretation, resistance, subjectivity, subordination

Introduction

The research explores the voices of the subaltern i.e. African-American women in Angelou's *I Know Why the Caged Bird Sings* (1969). Angelou presents the oppressed and subordinated position of African-American women in America. They are discarded by the mainstream and they do not find any right on the discourse of power to express themselves. This research attempts to answer "How have subalterns been represented

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in Angelou's Autobiography?" What are Angelou's perspectives about subalterns and their subordination in America?" And "How do subalterns like African- American women overcome injustices in Angelou's autobiography?" The research aims to prove that though subalterns are marginalized and discarded people of the society; they can speak at times and rise against injustices done upon them. Subalterns have strength and strong willpower to overcome their subordination.

This research paper claims that Maya Angelou's autobiography assigns black women an agency to dismantle and overcome injustices faced by them in the existing society. Angelou uses her autobiography to transform herself and many marginalized black women from victim of racism lacking identity to independent women who are strong enough to overcome injustices prevalent in the society. The paper focuses on the life and living of the marginalized black women in America. It also analyzes the emotional, sexual and intellectual development of black girl in the racist society, complexity of her familial relationships, and her struggle to overcome prejudices. To this end, I have applied Gramsci (1992) and Fanon's (1967) ideas on the subaltern and their identity. Besides, Abram (1999) and Tamen's (2012) notions of formation of agency and forms of resistance are used to show the way black women dismantle their exploitation in America. Broadly, the paper analyzes subaltern character Maya Angelou's journey towards knowing one's self.

Literature Review

Multiple dimensions of the text have been explored by various critics and writers. They basically have focused on the exploitation and discrimination faced by black women in American society. But not any of the studies has concentrated on these black women's overcoming of constraints with the help of their agency. Thus the paper concentrates on the politics of African-American women's agency to overcome various constraints set by the whites in America. Angelou, in her text, focuses on the severe punishment faced by African-American women in America. Angelou resists the discrimination and brutal nature of white Americans both overtly and covertly. Zenebe (1996) states, "black women have been dominated and oppressed by cruel and ignorant white men and culture" (p.35). The first part of Angelou's text presents African-American women as helpless and marginalized who are unable to speak against the discriminations prevalent in the society. Even Angelou has not been treated as a human because she is a black girl.

Koyana (1996) writes, "Angelou is special in the use of humor, self-mockery, linguistic sensibility and the skill of balancing the quest for human individuality. He is successful to show that racial, class and gender oppression affect the experiences of motherhood in a great extent" (p.42). African-American women have been developing

a lot throughout the novel. They have developed their confidence and selfhood. Maya Angelou, after being raped by the young man, goes into the world of silence but later on she resists various discriminations and exploitations with the help of her agency. The violence done upon the black girl shows the way she is engendered in the experiencing of race. This incidence of rape shows the exploitation of black women in the racist American society. Angelou becomes disheartened and traumatized after the incidence. In spite of being raped by the cruel man she remains silent. Angelou is unable to resist the discrimination in the beginning. But later on, she becomes successful to overcome injustices by being collective with other women from her society.

According to Barnwell (2005), blues has been used repeatedly in this text. The excessive use of blues shows the typical feature of blackness of the text. Barnwell argues, “Angelou’s masterpiece got prominence since it is special for the universal sense of self it portrays. The text owes to the other elements in the African-American cultural tradition such as, Negro spirituals, the blues, black vernacular and of course black poetry” (p.49). The text starts with the expression “What you looking at me for?” (Angelou, 1). This expression in the beginning of the text attempts to make the readers feel Angelou’s bitter experiences. Angelou identifies the women who share her plight in America to assign value to her being. It helps Angelou to overcome her bitter experiences.

Maya Angelou’s autobiography typically presents the sufferings and struggle of black women in America, as Cudjoe (1990) puts it, “a powerful, authentic signification of African-American womanhood in her quest for understanding and love rather than for bitterness and despair” (p.46). Angelou addresses African-American women’s experiences in America, basically in white racist society. Angelou tries to unearth the sufferings of black women in America by presenting her experiences through her autobiography. She raises her voice against racism, gender discrimination and classism in America. Angelou’s autobiography unearths not only her personal history, but the collective history of all black women.

The aforementioned ideas from various critics on Angelou’s text show that the previous writers and critics have focused on the sufferings of the African-American women in America. These studies do not talk about African-American women’s overcoming of constraints. In this study, I analyze black women’s position and politics to overcome various social, political and cultural constraints prevalent in the society to establish them as autonomous human being in America.

Methods and Procedures

This research is analytical in nature as it critically analyzes the bitter experiences of black women living in the prejudiced society in America and their hard fought struggle

to overcome the injustices. The paper uses library research in data collection. Data was collected from both primary and secondary sources. Primary data was collected from Angelou's (1969) Autobiography *I Know Why the Caged Bird Sings* and secondary data was collected from different books and journal articles on agency, identity, resistance, Angelou and her works. To this end, I have reviewed various research and theoretical articles. The study claims that black women successfully transform themselves from victim of racism and gender discrimination with an inferiority complex to autonomous individuals with the help of their agency in America. To substantiate this research claim, I have applied Gramsci's (1992, 2007) concept of subaltern, Fanon's (1967) ideas on how black skin like Angelou is marginalized and undermined, and how superficial identities are imposed upon black women in the racist American society. In addition, Abrams' (1999) notion of forms and formations of agency, and Tamen's (2012) perspectives on different ways of resistance have been taken into consideration. Basically, Gramsci and Fanon's ideas are applied to analyze the subordination and bitter experiences of black women in America. Moreover, Abrams and Tamen's notion of agency and resistance are taken into account to unearth the formation of agency of the black women and their overcoming of injustices prevalent in the society.

Findings and Discussion

Subaltern and Identity

Black women in America have been subordinated in the name of race, gender and class. The autobiography presents African-American women as helpless and marginalized. Gramsci defines such characters as subalterns. In Gramsci's (2007) words, "the subaltern classes fundamentally refer to any 'low rank' person or group in a certain society" (p. 66). All the black women have been given marginal place in the society in America. Angelou herself has not been treated as a human because she is a black girl. In the text, Angelou presents herself as the symbolic character representing every African-American woman growing up in America. Angelou tries her best to achieve her identity and struggles a lot to transform herself from victim of racism with an inferiority complex to an autonomous individual. Angelou (1969) confirms:

When I wrote *I Know Why the Caged Bird Sings*, I wasn't thinking so much about my own life. I was thinking about a particular time in which I lived and the influences of that time on a number of people. I kept thinking about that time; I used myself as the central figure to show how one person can make it through those times. (p. 153)

She resists sexism, racism and gender discrimination without any fear to give identity to the black women in America. She does not remain child and she creates her white self in order to adjust in the racist American society.

Postcolonial theory of black feminism stresses on the idea of social justice, emancipation and democracy to challenge oppressive structures of reason, discrimination and exploitation. It basically concentrates on the sufferings of African-American women in white racist societies in America. Walker (1983) states, “Black women experience different and more intense form of oppression than that of white women” (p.37). Angelou develops inferiority complex for not being gifted with white body which is considered beautiful and pure in America. She develops a sense of shame at her own black body. This sense of self-hatred makes Angelou transform her body. Angelou writes:

Wouldn't they be surprised when one day I woke of my black ugly dream, and my real hair, which was long and blond, would take the place of the kinky mass that Momma wouldn't let me straighten? My light-blue eyes were going to hypnotize them, after all the things they said about “my daddy must of been a Chinaman” (I thought they meant made out of china, like a cup) because my eyes were so small and squinty. (p.2)

Young Maya tries her best to achieve beautiful body and tries her best to distance herself from what Americans considers an ugly body. Angelou experiences herself as a subordinated individual with so much of confinement in the society in the name of gender, color and race. But the well-grown lady, Angelou, becomes successful to overcome these injustices. At the end of the autobiography, Angelou appears as the independent woman. She establishes herself as the independent woman despite various insults and discriminations. Angelou states, “This is an unnecessary insult” (p.4). Angelou rejects that “unnecessary insult,” and moves ahead in the path of struggle for her freedom.

The last part of Angelou's text deals with the teenager girl who is trying to extend her role in the society though she faces identity crisis at that stage. When she compares her own body with other matured bodies in the society, she believes that she lacks the essential qualities of a woman. She writes, “For a sixteen-year-old my breasts were sadly undeveloped” (p.274). Indeed, she wants to make sure she is not lesbian. She writes, “then the question began to live under my blankets: how did lesbianism begin? What were the symptoms?” (p.274). She is doubtful about her sexuality because she is called lesbian by white women. Angelou is teased by white woman because of her unique body structure. In order to make sure she is a normal lady, she makes physical love with a young man and gets pregnant.

Fanon (1967) presents the way black skin is marginalized and undermined the racist American society. He argues, “mask, skin and veil emphasizes how the historically determined surfaces of race, gender and culture objectify the colonized

as well as how the colonized may counter and overcome these superficial identities imposed upon them by colonization” (p.15). In San Francisco, black women were not allowed to work as a street car conductor before Angelou becomes the first Negro girl street car conductor. Maya Angelou started working as a street car conductor not to challenge the system or trend of the society but to survive and become independent. This profession leads Maya to continue her study as she is able to afford it now.

Even after realizing the impossibility of being street car conductor, Angelou continues to struggle for the job. Even after being mistreated by the white secretary of the San Francisco street-car company, Angelou does not lose her hope and tries to give her best in the job interview. Maya presents this incident as:

The incident was a recurring dream, conceded years before by stupid whites and it eternally came back to haunt us all. The secretary and I were like Hamlet and Laertes in the final scene, because of harm done by one ancestor to another, we were bound to duel to the death. Also because the play must end somewhere, I went further than forgiving the clerk, I accepted her as a fellow victim of the same puppeteer. (p.260)

Hereafter Angelou realizes that the rejections, which have occurred due to her race, also have everything to do with her personality. She also realizes that there is no possibility to separate her personal identity from her racial identity. She had to bargain a lot with the white receptionist, to become the first ever black girl streetcar conductor in San Francisco. There is serious racism in San Francisco. Angelou getting the job of the street-car conductor shows not only the victory for civil rights but also a personal victory for Angelou’s sense of self. The overt resistance and outright protest on the part of Angelou and all the African-American women break the ‘color line’ and discrimination prevalent in America.

According to Fanon, the colonized trying to wear “White Masks” is an effort to avoid their inferiority. Black skin, white masks shows Fanon’s search for, and failure to find, available means to overcome subordination and objectification of blacks. In black skin, white masks, the black woman challenges the discriminations by manipulating the colonizer’s domination through silent revolutionary action. For colonized, Fanon argues that, “identity that the mask, skin signifies is alternately that of their wearers’ objectification by colonial discourse and of their wearer’s false consciousness” (p.17). The ‘black skin’ of the Fanon’s title is singular whereas ‘white masks’ is plural. Black people who make the use of French language possess the power in the society in America.

Fanon (1967) argues that, “colonialism drives the colonized to madness by rejecting any individuality claims of the native” (p.20). In the text, the act of dominating the black students’ future happened at the time of Maya’s eighth grade graduation by

the white man invited as a guest speaker. The white man named Mr. Edward Donleavy from Texarkana gives quite racist speech in front of the black crowd during the commencement address of the graduation:

He said that he had pointed out to people at a very high level that one of the first-line football tacklers at Arkansas Agricultural and Mechanical College had graduated from good old Lafayette County Training School. Here fewer women were heard. Those few that did break through lay dully in the air with the heaviness of habit. He went on to praise us. He went on to say how he had bragged that "one of the best basketball players at Fisk sank his first ball right here at Lafayette County Training School." ... The white kids were going to have a chance to become Galileos and Madame Curies and Edisons and Gauguins, and our boys (the girls weren't even in on it) would try to be Jesse Owens and Joe Louises. (p.174)

The white man speaks against the black crowd undermining their strength and ability. The white man humiliates blacks saying that black students will be hired in labor oriented jobs only. They lack mental brilliance that is why they cannot perform the work requiring critical thinking.

Maya's discussion of the "common forces of nature (p.265)" foreshadows her journey of survival and how it has overcome adolescence, sexuality, and teenage pregnancy. These obstacles are faced by all African-American women. Angelou writes:

The black female is assaulted in her tender years by all those common forces of nature at the same time that she is caught in the tripartite crossfire of masculine prejudice, white illogical hate and blacks' lack of power. The fact that the adult American Negro female emerges a formidable character is often met with amazement, distaste and even belligerence. It is seldom accepted as an inevitable outcome of the struggle won by survivors and deserves respect if not enthusiastic acceptance. (p.265)

Angelou presents the discriminations and insecurities faced by black women in America and the way they challenge them with the help of their will to act to get equality in the white racist society. The last part of the text deals with Angelou's sense of insecurity on mothering an 'illegitimate' child. But Vivian and her family turn out to be acceptant of the child which also develops self-confidence of Angelou.

Early twentieth century American society was complicated due to racism, gender, and discrimination and slavery system. Many black people had to get separated from their members of the family due to this system. African-American women were taken as inferior and barbaric but whites were superior and civilized. In addition, there

was hierarchy in the naming pattern. According to Burnard (2001), “Every year, slave owners responsible for managing estates were required by American law to submit, slaves and livestock on their prosperities. Whites were listed by firestone and surname; slaves were denoted by modifier referring to his, occupation or ethnicity; and stocks were merely enumerated” (p.329). Name is the identity of an individual. Changing name affects individual’s identity. Whites change Angelou’s name from ‘Marguerite’ to ‘Mary’ do dominate her. This is an unethical act as they change her name without her consent. Black women lack their identity in the prejudiced American society and they struggle a lot to establish themselves as autonomous beings.

Subaltern and Agency

Angelou presents multiple incidents of racism in the text. Black people are not allowed to share even drinking water with the white people. Angelou always stands against the discrimination and subordinations. She does not allow anybody to take advantage of her. Angelou goes against the renaming of African-Americans by the whites. Angelou takes her master’s renaming as “hellish horror of being called out of her name” (p.106). When Angelou realizes that she has been insulted, she rebels by breaking Mrs. Cullinan’s favorite dish. In this regard, Abrams (1999) argues that, “agency manifests itself in various terms of self-definition and self-direction” (p.811). Angelou challenges her subordination and she does not feel the need of following white women’s instructions. Young Angelou does not want to tolerate mistreatment of any kind. She is so much careful about her identity and dignity. Her dignity and pride make her forget about the job and money. When she gets insulted from her employer, she breaks her employer’s favorite piece “china from Virginia” (Angelou, 1969, p.107). This act shows Angelou’s resistance against the discrimination, domination and subordination. Maya got angry with Mrs. Cullinan because she changed her name. This incidence shows how Marguerite expresses her resistance without any hesitation. After few discriminatory names, Mrs. Cullinan correctly pronounces her name, but still she pronounces as Margaret. Maya, with the active resistance on her part, gets her favorite name.

African- American women were dominated and tortured by whites by misinterpreting their names. Black people are given different names by the whites according to their will. Burnard highlights on the names given to African-Americans where white people take black people as the slave and some of the names recorded in white-generated sources. As Burnard (2001) remarks:

An analysis of naming pattern can help to determine the extinct to which African cultural practices were retained and transformed in the movements of Africans to America and an explication of the rules governing the distribution of names shows the way whites slaves and animals were differentiated in America. In

particular, the names given to blacks indicated that white Americans thought Africans as Negroes. (p.325)

African- Americans get their names in the white racist society on the basis of the slave naming pattern followed by the whites. African-American people are not allowed to choose their names and they have to accept the names given to them by the whites. This shows African-Americans' inferior position in a society. African Americans were given bitter nick names by the whites. Angelou challenges these discriminations without any fear to achieve her proper identity in the society.

Maya's interest and effort to join the job interview is not respected by the white secretary street-car company in San Francisco. Coole (2005) argues that, "agency is a necessary ingredient of politics, while eliminating the Cartesian presupposition that have, for example, rendered the agency structure debate irresolvable and supported a subjectivist account of agents that is no longer tenable" (p.136). Angelou goes against the discriminations and spread awareness among all the black people about their subordinated position in the white racist society. Black people master various resistance techniques and they are also forced to do so to overcome their subordination a racist society in America. Angelou writes, "the standard questions reminded me of the necessity for dexterous lying" (p.269). The autobiographer focuses on how she "wrote quickly the fable of Marguerite Johnson, aged nineteen, former companion and driver for Mrs. Annie Henderson (a White Lady) in Stamps, Arkansas" (p.269). Maya gets the job as the street-car conductor and breaks the boundary set for the black women in the racist society. Maya dismantles the racist white society's discourse on black people. Maya's mother helps her lot to achieve her goal. Maya's mother, Vivian Baxter encourages Maya to get the job of her choice. She supports Maya to fight till she was employed as the street-car conductor. Vivian Baxter assures Maya that she is no less beautiful and intelligent than the white people. She also helps Maya to understand her maturing physicality. This encouragement from the family and her group give Angelou deep agency to dismantle various social, racial and political constraints prevalent in America.

Subaltern and Resistance

Black women have questioned and resisted various gender and racial discriminations prevalent in America. They struggle in the society to get rid of them. Angelou gradually develops her confidence to challenge each and every kind of discrimination in American society. She acts confidently to dismantle the discriminations and tortures faced by black women with the help of her ability to act independently. Tamen (2012) believes that resistance is not possible without agency. In this regard Tamen argues, "there are two forms of resistance to hit the weak structures of the

society: overt resistance and covert resistance” (p.12). Overt resistance is obvious whereas covert resistance is subtle. Overt resistance is easily recognizable but covert resistance is hidden as it is not openly displayed. Both overt and covert resistances are tools of social change for the marginalized and subordinated people in the society. Angelou challenges her subordination and she does not feel the need of following white women’s instructions. She writes:

I dropped the empty serving tray. When I heard Mrs. Cullinan scream, “Mary!” I picked up the casserole and two of the green glass cups in readiness. As she rounded the kitchen door I let them fall on the tiled floor. I could never absolutely describe to Bailey what happened next, because each time I got to the part where she fell on the floor and screwed up her ugly face to cry we burst out laughing. (p.110)

Angelou’s act of breaking the utensils shows her resistance to the dominations of the whites. The act of destroying the white lady’s most prized things shows the threat to her sense of identity. The act of breaking the most valuable utensils of the white lady also shows that Angelou has gained enough strength to challenge white woman’s attempt to take control over her by renaming her. Angelou does not like renaming her and says, “My name wasn’t Mary” (Angelou, p.111). Now, at this stage, Angelou is able to confront the racist and sexist society around her. At the end of the narrative, Angelou is ready to stay in the white world not with hatred but with a pride as a black woman.

When people are self- determined and have strong will to act, they can easily dismantle the inequalities. In this line, bell hooks (1989) Argues that, “individual commitment when coupled with engagement in collective discussion, provides a critical feedback which strengthens our efforts to change and make ourselves a new (p.60).” There is one resistance in this narrative that is different from the rest. Through the italicized text, it is shown that Momma directly confronts the dentist and orders him to leave the town as soon as possible:

“I didn’t ask you to apologize in front of Marguerite, because I don’t want her to know my power, but I order you, now and herewith. Leave Stamps by sundown.” “Mrs. Henderson, I can’t get my equipment ...” He was shaking terribly now. “Now, that brings me to my second order. You will never again practice dentistry. Never! When you get settled in your next place, you will be a vegetarian caring for dogs with the mange, cats with the cholera and cows with the epizootic. Is that clear?” The saliva ran down his chin and his eyes filled with tears. “Yes, ma’am Thank you for not killing me. Thank you, Mrs. Henderson.” (p.190)

This text shows Maya's wishes for her grandmother. She wants her grandmother to resist racist dentist. Maya's grandmother does not go for the open confrontation against the racist dentist. Maya realizes that overt resistance is not her Momma's philosophy. According to Maya subtle resistance is not enough. She believes that covert resistance which is basically indirect confrontation cannot respond to racist oppression properly. Angelou chooses outright confrontations to overcome discriminations.

Angelou displays that Momma's act of confronting the white dentist shows very strong approach to dismantle racism. This action shows Momma's active protest against white discrimination in particular and black people's resistance against white supremacy in America. Walker (1983) argues that, "...the struggle to end sexist oppression that focuses on destroying the cultural basis for such domination strengthens other liberation struggles. Individuals who fight for the eradication of sexism without struggles to end racism or classicism while supporting sexist oppression are helping to maintain the cultural basis of all forms of group oppression" (p.177). In the narrative Momma is presented as the person with patience, courage, and silence. She often chooses indirect resistance. Maya dismantles the race barrier and she becomes the street-car operator in San Francisco. She confronts the mistreatment done upon her by the white employer Mrs. Cullinan in an outright manner. Besides, strong and unified black community of stamps shows how African- Americans dismantle oppressive system in America.

Angelou's grandmother also goes for subtle resistance and active protest to dismantle racism and gender discrimination prevalent in America. Momma's active protest can be observed when she confronts white racist dentist. Momma resist white dentist who does not show interest treating Maya's rotten teeth. White dentist abuses her saying, "I do not treat nigra, colored people" (Angelou, p.189) then Momma resists. Angelou writes:

Momma walked in that room as if she owned it. She showed that silly nurse aside with one hand and strode into the dentist's office. He was sitting in his chair, sharpening his mean instruments and putting extra sting into his medicines. Her eyes were blazing like live coals and her arms had doubled themselves in length. He looked up at her just before she caught him by the collar of his white jacket. (p.189)

Momma's resistance begins with passive protest against cruel nature of whites. Her passive protest is followed by outright protest against racial discrimination. She confronts the dentist without any hesitation. This act of resistance from Momma shows that black women have achieved agency to counter discrimination and they are no more under the control of white people in America. African-American women

no more tolerate discriminations, tortures and injustices done upon them by racist whites. Momma's confrontation to dentist shows that black women have achieved solid identity and they can live their life the way they like to do. They are getting health and educational facilities like that of white people in America. This proves that black women in America have become successful to transform themselves from victim of racism to self-dignified women capable to challenge discriminations. They have developed themselves as autonomous beings getting equal right in the society. Now, they live in the American society not with hatred but with pride as they are taken as the valuable assets of it.

Conclusion

The research concludes that Angelou's autobiography is filled with African-American women's struggle and their voice against their subordination in the society that are unheard and ignored. Maya Angelou's autobiography presents the discrimination, domination and injustice imposed upon African-American women by the whites in the racist American Society. Angelou refuses patriarchy and racism in America. She suffered throughout her life due to the extreme form of racism, dominance of patriarchy and slavery system. The autobiography is concerned with the struggle of black women and their search for liberty. Angelou gives voice to the voiceless in America. She presents black women as strong humans who are able to resist discriminations and turn their victimization into triumph. Angelou shows the necessity of redefining subalterns' identity. She openly presents her suffering and brutal treatment of whites towards African-Americans and it becomes the story of resistance. The autobiography emphasizes on poor African American women trapped in the socio-cultural boundaries and their emergence as a dignified woman through resistance. They resist slavery, racism and their subordination fearlessly in America. Moreover African- American women use their agency to dismantle discriminations done upon them and transform them as the dignified women capable to rewrite biases. The research suggests that the identity of the subaltern always remains in the constant process of change and redefining their identity is essential to connect subalterns to the mainstream. The research encourages Nepalese researchers to carry out various research works on exploring Dalits, Adivasis and Janajatis' agency in Nepal to redefine their identity.

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Self-regulated Learning in Secondary Level English Textbooks in China

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Abstract

This paper explores the place of self-regulated learning in English language curriculum in China with a special focus on the analysis of English textbooks prescribed for secondary schools in Guangdong. Four textbooks prescribed for two semesters of grades 7 and 8 each, and curriculum of the same level were analyzed to explore to what extent the self-regulated learning has been adopted in the curriculum and textbooks. The findings reveal that both curriculum and textbooks promote self-regulation, which supports to achieve the curricular goals of learning a language. The implications are that such an exclusive focus on self-regulatory processes in the textbooks has a high potential to realize the goal of promoting self-initiated and independent learning in China's secondary education.

Keywords: Self-regulation, English language curriculum, secondary schools

Introduction

Foreign language education in China has evolved as one of the major concerns of educational reforms. The Chinese government intends to promote the education system that addresses learners' self-awareness about their learning, self-initiation and independent learning (Ministry of Education, 2011). Although such values were also historically embedded in the Chinese cultural system, the government wished to implement this from the formal schooling system through methodological changes in the curriculum, textbooks and pedagogy. This has been aimed at the implementation of the self-regulated learning (SRL) approach.

The emergence of distant education in 1970s promoted the concept of autonomous learning, which was later recognized as an autonomous learning (Moore,

1972). Holec (1981) initially defined SRL as "the ability to take charge of one's own learning" (p. 3). In this concept, SRL is not much different from self-directed learning approach, since both of them emphasized on the understanding of the importance of individual learner's engagement in independent thinking, self-paced learning supported by cognitive and affective factors. While such concerns were discussed in the academia, by several scholars Schunk (2001) defined it as "learning that results from students' self-generated thoughts and behaviour that are systematically oriented toward the attainment of their learning goals" (p. 125). Both authors focused on autonomy in the learning process, expecting that each individual engaged in the self-regulatory process while meeting their goals of learning. While doing so, the individual learners may develop control over the cognitive processes in making decisions about the tasks that they are doing. Pawlak and Csizer (2022) have pointed out the role of autonomy and the agency of learning in developing students' capacity and proactiveness in the learning process. The same understanding was continued by Pintrich (2000) claiming that learners' motivational orientation, their engagement in the learning process, and academic achievement are interrelated, all of which support SRL processes. The scholars mentioned above agree that learners use metacognitive knowledge while making decisions and they try to adjust according to their orientations. Students' orientations are shaped by their interaction within the educational settings. However, the institutional factors such as learning conditions, resourcefulness and other social-cultural elements influence the way learners take initiative in their autonomous learning process. Similarly, Teng and Zhang (2018) identified that teachers' and students' clear understanding of dynamic relations among metacognitive elements is necessary for furthering learner autonomy. Schunk (2001) claimed that students' social experiences and personal belief systems impact their interaction with teachers and peers within their educational settings. This also implies the importance of students' self-paced and intrinsically motivated engagement in learning that can promote their independent learning habit. The core of this is self-regulatory learning on the part of the students.

Although there is a growing interest in SRL in China, little is known about how the learning materials such as the school textbooks incorporate the SRL process. This study was situated within this research gap and aims to contribute to the body of knowledge on SRL and English language teaching in China.

Literature Review

SRL has received growing attention in educational research and practice as it has been found useful in lifelong learning (Boekaerts, 1999; Zimmerman, 2002; Zimmerman & Schunk, 2011). As pointed out earlier, there is an ample amount of research literature in SRL in the context of China. These research studies are situated at different levels of education ranging from the primary level to university level.

Several studies have observed the metacognitive, motivational and behavioural aspects of participants in their learning process (An et al., 2021; Teng & Zhang, 2021; Zou, 2019). For instance, An et al. (2021) carried out their study in the context of Mainland China focusing on the technology supported SRL strategies used by university students. They found that technology assisted SRL strategies mediated self-efficacy, enjoyment and learning outcomes, thereby revealing the positive impact of SRL embeddedness in learning motivation and achievements. Self-efficacy refers to students' belief about their own abilities to perform their specific learning tasks. The curriculum in China has also emphasized development of students' self-efficacy, autonomy and motivational self-regulation. In Hong Kong, for example, the government curriculum focuses on actualizing 'learning to learn', alongside of enhancing students' independent learning, active engagement and self-management (Curriculum Development Council, 2002, 2014).

Paton and Lan (2010) claim that self-regulated learning skills have two focuses: individuals' academic achievement and enhancing individuals' academic achievement outcomes. Similar claims were also made by several other studies agreeing that the application of self-regulated learning strategies can develop learners' motivation by helping them to be stick to goal orientation, changing their values, beliefs, and expectancy for success and self-efficacy (Teng & Zhang, 2018; Zou, 2019). Another study by Zhou and Rose (2021) in first-year Chinese students after they enter to an EMI transnational university reported that students engaged in self-regulated listening strategies which developed their listening proficiency as well as their self-efficacy. This helped them cope with the challenges faced during the transition to EMI programmes.

These studies revealed that the use of SRL supported learners' engagement and independent learning, including their goal orientation and motivation. My own experience as a teacher educator showed that involving learners in self-regulatory processes positively impacted their engagement in construction of knowledge, skills and attitudes. This leads me to agree with the claims by the authors, especially those from the Chinese context that SRL in language education is beneficial for students' independent learning. Independent learning is also related to what Paris and Paris (2001) claim as an amalgam of constructivist, social, sociocultural and social cognitive orientations that collectively influence individuals' learning-related decision-making. Hence, the relatedness of SRL with several cross-disciplinary components makes it a multi-componential, dynamic activity constitutive of individual and social processes (An et al., 2021; Zimmerman & Schunk, 2001) and therefore becomes a subject of scrutiny from a curriculum and materials perspective. Understanding of how these components are integrated into the curriculum and materials is important to provide the basis for further improvement in current policies and practices, and this is one of the major concerns of this study.

The Role of SRL in Learning

Several studies have shown that there is a significant predictive role of SRL process in students learning achievement and motivation. For example, Pawlak and Csiser (2022) found that SRL strategies predicted students' motivated learning behaviour. Further evidence is also available from Teng's (2016) study in university students in China that reported SRL-based teaching positively impacted students' writing performance and promoted their motivational beliefs and self-efficacy in writing. Similarly, Xu (2021) identified the positive impact of the SRL-based homework tutoring programme implemented in an afterschool setting in Hong Kong. She further concluded that learners made significant changes in time management, monitoring, motivation and managing the distractions in learning. These findings have also been echoed by Lai and Hwang's (2021) study in Taiwanese context. Lai and Hwang (2021) concluded that SRL had the highest positive impact on students' goal setting and planning and reviewing their pervious performance. All these findings relate to several aspects of the SRL process including metacognitive, self-control, and self-reflection strategies of students. Similarly, another empirical study carried out in China by Banisaeid and Huang (2015) demonstrated a significant relationship between self-regulation and language learning strategies. All these studies showed positive impact of SRL on students' learning, but there is lack of literature on how the SRL has been integrated in English language textbooks that are in practice in the mainland China to support learning. The present study addresses this research gap, as it is significant to understand the curricular and material support in bringing in SRL in the classroom in the context that studies have shown a positive and beneficial effect in students' learning if SRL is used properly.

Methods and Procedures

Research Design, Sample and Data

This paper utilizes qualitative research method in which the data were obtained from the analysis of the English language curriculum and English textbooks of secondary level in China. While several textbooks are used across different provinces in China, two textbooks that are in use in Guangdong province (and in several other provinces across China) were purposively selected for review. These textbooks published by Cengage Publications were selected because they are widely used across China and have been in use since 2012. While reviewing the textbooks, focus was made on the SRL components, and their relatedness with the provisions of the national curriculum published in 2011 by the Ministry of Education of People's Republic of China.

Hence, this study included two main documents: the secondary school curriculum and the textbooks published for the implementation of the English language curriculum.

Regarding the former document, I have referred to the recently published secondary school curriculum circulated by the Ministry of Education in China. While analyzing the document (i.e., the English as a foreign language teaching curricula) specific focus was made on the aspects of SRL, both the ones that are explicitly presented and those indirectly incorporated in the curriculum and the policy. The second were the textbooks used for grades 7 and 8 of semesters one and two, which were analyzed drawing on the SRL process.

Analytical Procedures

The secondary level curriculum of English and the chapters of the selected textbooks were critically analyzed to identify the contents and processes pertaining to SRL. Table 1 and 2 illustrate the analysis of the SRL contents and the processes, including examples of the tasks that aim at promoting SRL. I adopted thematic data analysis procedures that helped me to develop themes inductively and the same were presented as thematic findings. The analysis of the textbooks was also assessed from the curricular perspective where reference was made whether the textbook contents and activities reflected the goals of the curriculum. Hence, the findings were reported specifically related to curriculum and to textbook. Although this study did not draw specifically on a particular framework, as mentioned earlier, it drew on the ideas of Zimmerman's (2002) SRL framework that presents SRL process as a combination of three consecutive phases; forethought phase, performance phase and self-reflection phase which work in a cyclical relationship to enhance learning. These phases are used in the analysis as presented in Table 1. The paper did not focus on explicit analysis of these phases as the core objective was to examine the textbook contents and curricular goals of the English language in secondary level education in China.

Results

Based on the analysis of data obtained from the review of the curriculum and the textbooks, the results have been presented and discussed in two broader categories: curriculum specific and textbook specific findings. Between the two, the second category has been extensively elaborated compared to the first one, as translation of curricular content in instructional materials has to be well-elaborated.

SRL in School Curriculum in China

China has a relatively more centralized curriculum unlike the countries in the West. The English language in Chinese education system has been acknowledged as one of the important subject areas to be learnt. For instance, the curriculum standards published by the Ministry of Education of the People's Republic of China (2011) states, "Learning and using English is very important to absorb the achievements of

human civilization, learn from foreign advanced science and technology, and enhance the mutual relationship between China and the world” (p. 8). This broader goal values English not only as a foreign or international language but also as a means of importing the advanced technological developments as well as tool for advancing China’s relationship with the world. This motive, which has been grounded in the micro level of the Chinese society drives the craze for learning English. In other words, learning of English has been one of the great concerns of national development and China’s reach to the international community. While it has been emphasized as one of the core subjects of the curriculum in secondary education, it is sensible to explore how this subject has been taught, and whether the strategies used are meeting the requirements of the curriculum that aspires to develop human resources who are endowed with independent learning abilities. Hence, understanding of how SRL has been embedded in English curriculum and textbooks is important in this context. This paper focuses on this evolving concern.

The review of the curriculum showed that developing students’ understanding of the global culture is one of the major goals of English teaching. The analysis of the textbooks also resonated these concerns (see Nunan et al., 2012). For instance, the MOE (2011) states, “Learning English can help them form an open and inclusive character, develop the awareness and ability of cross-cultural communication, promote the development of thinking, and form a correct outlook on life, values and good of humanistic qualities” (p. 9). This statement not only shows the goal of Chinese school curriculum to promote the sense of national belonging and identity of the individuals, but also the individuals with capabilities of cross-cultural understanding and critical thinking. These are the values promoted by the SRL as well (Zimmerman, 2002), as it emphasizes the metacognitive, cognitive, social, and emotional aspects of individuals during the learning process to make sense of the cross-cultural issues and the issues underpinning individual’s self-paced learning capabilities. The curriculum also acknowledges language not only as a means of communication but also as a tool for thinking. One of the primary goals of English language learning intended by the curriculum was to engage students to participate, explore and cooperate to discover language rules, master language knowledge and skills, constantly adjust emotional attitude, form effective learning strategies, and develop autonomous learning ability (MOE, 2011). Hence is the justification that Chinese school curriculum intends to shift towards the promotion of lifelong learning experiences from the traditional teacher-centered instruction, which is a great leap in curricular reforms. This leap is one of the points of departure for reform in instructional practices in China. It promotes, though unstated, the use of SRL in pedagogical practices in school education.

SRL in English Language Textbooks in Chinese Secondary Education

In China, English is taught as a compulsory subject from grade 4. English is taught six classes every week. In most cases, prescribed textbooks are the primary sources of data. In that case, the contents and methods suggested in the textbooks work as the major resources for teachers to facilitate their courses. With this case in the background, this study analyzed Chinese secondary level English language textbooks to explore the process and contents that promote SRL. The textbooks for two semesters for grades 7 and 8 each were analyzed using the SRL framework proposed by Zimmerman (2002) that includes three phases of SRL process; forethought, performance and self-reflection phases. Table 1 presents the SRL characteristics of the English textbook of grade 7. The results are organized in phases and sub-phases of SRL and are illustrated by relevant examples in the last column.

Table 1

SRL Characteristics of PEP English Textbooks for Grade 7

SRL phases		Examples	Remarks
Phases	Sub-phases		
Forethought	Goal setting and environmental structuring	<p>“Introduce yourself, greet people, ask for and give telephone numbers.” (Task in unit 1, term 1)</p> <p>“Talk about abilities” (term 2)</p>	Here, the aim is to create enabling learning conditions for students by simple activities, and that help to meet the goals.
	Strategic planning	“Topics – Functions – Structures” in the contents of the textbook.	Foreign language teaching to be done in a structured way.
	Self-efficacy		
	Outcome expectations	Be able to explain their plans.	
	Task interests and values	“Write English words for the things in the picture”. (Unit 1-Section A-1a, Term1)	A number of pictures and illustrations arouse interest in students, so that they can be self-paced.

Performance	Self-control: - Self-instruction and attention focusing - Task strategies	- “Listen and number the conversations” (Unit 1, section 1, A-1b, term 1). - “Role play the conversation” (Unit 1-Section A-2d, Textbook Term1)	- Students are expected to self-instruct and regulate their listening to complete the task. - Several tasks (such as role plays) are useful for creating creative learning opportunities for students.
	Self-observation: - Metacognitive monitoring and recording		
Self-reflection	Self-evaluation	‘self-check’ (at the end of each unit of Section B)	Students are expected to self-evaluate their learning on the unit, by completing the exercises. It enhances independent learning.

Table 1 presented the representative summary of how SRL has been emphasized in English textbook of grade 7. It also illustrated that SRL has been an integral part of the curriculum, translated in practice through the textbooks. Although the policies do not state directly about SRL, several forms of learning emphasized in the textbook (contents and tasks) reveal an implicit embeddedness of SRL in foreign language education.

The contents in the textbooks emphasized several aspects of the SRL process such as monitoring, effort regulation by providing them clues expecting that students will be able to make plans to attain the set goals. These focuses originate from the curricular objectives that aim to promote students’ independent and autonomous learning. As presented on Table 1, most of the sub-categories of forethought and performance phases have been incorporated in the textbook contents, including the texts and tasks. However, there is relatively little focus on the final phase, viz. self-reflection which includes two sub-processes, i.e., self-evaluation and self-reaction. Although there are exercises for students to evaluate their performance, the activities for self-reaction are rarely found.

Table 2 presents an analysis of grade 8 textbooks based on the SRL goals. While grade 8 textbooks are relatively higher in terms of contents, the activities for foreign language learning are largely similar.

Table 2*SRL Characteristics of PEP Textbook for Grade 8*

SRL phases		Examples	Remarks
Phases	Sub-phases		
Forethought	Goal setting and environmental structuring	<p>“Talk about your past events” (Task in unit 1, term 2)</p> <p>“Talk about health problems and accidents. Give advice”. (Unit 1, term 2)</p>	Here, the help to meet the goals of learning to express their past, and also present their current problems. This helped students relate the current learning with the past.
	Strategic planning	“Topics – Functions – Structures” in the contents of the textbook.	Foreign language teaching/learning taking place inductively.
	Task interests and values	<p>“Match the activities with the pictures”(Unit 1-Section A-1a, Term1).</p> <p>“ReadJane’ diary entries about her vacation and answerthe questions” (Unit 1-Section B-2b, term1).</p> <p>“Listen and number the pictures 1-5 in the order you hear them.” (Unit 1-A-2a, term2)</p>	A number of pictures and illustrations arouse interest in students, so that they can be self-paced.

Performance	Self-control: <ul style="list-style-type: none"> - Self-instruction and attention focusing - Task strategies 	<ul style="list-style-type: none"> - “Listen and number the conversations” (Unit 1, section 1, A-1b, term 1). - “Role play the conversation” (Unit 1-Section A-2d, Term1) 	<ul style="list-style-type: none"> - Students are expected to engage in self-paced learning and regulate to complete the task. - Several tasks (such as role plays) are useful for creating creative learning opportunities for students.
	Self-observation: <ul style="list-style-type: none"> - Metacognitive monitoring and recording 	<ul style="list-style-type: none"> “Do you think it comes from book or newspaper?” (Unit 1, 3a, term 2) - “Make notes about what he/she should/should not do” (Unit 1, 2b term 1) 	<ul style="list-style-type: none"> - students need to read and monitor the text to complete the task. - the recording activity followed by reading develops self-regulation.
Self-reflection	Self-evaluation	‘self-check’ (Unit 1, 3b, term 2)	Students are expected to self-evaluate their learning on the unit, by completing the exercises. It enhances independent learning.

Table 1 and 2 illustrate that the English language textbooks aim at engaging students in planning their learning goals, thinking critically as well as evaluating their learning process and outcome. The textbooks are teaching the content to enable students to develop language abilities such as being able to listen to the conversations, speaking on certain topic, reading short English texts and writing descriptive paragraphs and

essays. The same has been emphasized by the curriculum. For instance, the School Curriculum- 2011 mentioned that English learning should establish mutual penetration and connection with other subjects, so as to promote “comprehensive development of students’ cognitive ability, thinking ability, aesthetic taste, imagination and creativity” (MoE, 2011, p. 29). These concerns relate to students’ metacognitive skills including their socio-emotional ones. Metacognition refers to cognition about cognition of individuals that helps them in decision-making in learning related task (Flavell, 1981). As mentioned earlier, SRL is the ability of learners to control their learning with their disciplined position, guided by their motivation and cognitive knowledge. Hence, the focus of curriculum and textbooks on enhancing learners’ SRL through several tasks develops SRL ability.

The textbooks also include language functions that require learners develop skills in using English for practical purposes such as making polite requests (e.g., grade 8, unit 3, term 2), write letters/emails to the place where they wanted to volunteer at (grade 8, unit 2, 3b term 2). Like this, there are several other language function elements taught in other units of the textbook. The goal of all of which is to enable students develop independent skills in using English for practical purposes. However, guidance of teachers is equally emphasized in the curriculum and textbooks. There are some limitations of this study as the findings drawn in this paper are only based on the analysis of the recent curriculum and currently used English textbooks. This analysis may not tell a complete story, but definitely presents a case that SRL has been established as a part of secondary education in China.

Discussion

The aim of the study was to explore how the SRL has or has not been integrated in secondary level curriculum and textbooks in China. In China, English is taught as a foreign language and has been included as a subject in the secondary school curriculum. Despite its widespread presence in secondary education, it is still unknown to what extent and how it has been integrated in the curriculum and textbook. Several studies have also revealed the expansion of this trend in university education as well (Chen et al., 2021; Zeng & Zhang, 2018). The main motivation for expanding adoption of SRL in the education system is the independent or autonomous learning conditions that SRL processes can create in the classroom and outside of the classroom situation. Tse et al. (2022), in their study in bilingual students in Hong Kong primary schools, concluded that the use of SRL strategies (e.g., planning and monitoring) used in Chinese learning positively affected their corresponding strategies used in learning English reading. Another study by Xu (2020) also showed that the students who had SRL exposure in the schools were able to continue learning independently at home with the guidance of their parents. Many scholars (such as Zimmerman, 2000; Schunk,

2001; Teng & Zeng, 2018) believe that SRL facilitates the learners to gear up their autonomous learning process and enhances their learning motivation. In this process, the learners monitor their learning, direct their operations, and take actions to meet the previously set goals that help them to expand their knowledge and skills in the concerned areas (Paris & Paris, 2001). The textbook contents such as *'talk about your past incidents/events'*, *'listen and complete the conversation'*, *'match the pictures with the words/phrases'*, *'take notes while you listen or read'*, etc. emphasize and target those goals of learning. These activities support the very curricular goal of developing goal-orientated and independent learning habits on students. This also shows that the curriculum and textbooks collectively aim and address SRL. This process gradually contributes towards the enhancement of learners' self-regulatory competence.

The prescribed as well as suggested tasks in the textbooks substantially manage the students to be engaged in self-regulatory process, with the help of several underlying sub-processes such as group and pair works in foreign language education. Some tasks such as self-evaluation or assessment of their previous learning provide students with ample opportunities for revision of their learning. Chen et al. (2021) in their semi-experimental research conducted in a university in China with 102 students studying compulsory English writing course found out that the revision tasks improved their metacognitive knowledge in foreign language writing. Several scholars (e.g., Song & Ferretti, 2013) have agreed that SRL instruction has developed students' ability to revise and review the task, and subsequently improved the quality of the learning. The findings of this study also relate to these concerns and imply that the SRL content and methodology adopted in the selected textbooks contribute toward promoting SRL in the teaching learning process. Although the implementation of the content and the nature of the instructions vary depending on the professional skills, knowledge and awareness of teachers (Zou, 2019), SRL will be more likely to be practiced in the class if the materials also include the SRL components. This study found that the textbooks and curriculum included such components. A study conducted in Italy, Poland and Turkey also revealed significant relationship between students-initiated learning strategies and their self-regulation. While the intent of learning, proactiveness and individual agency play important role in the success of learning (Dornyei2005; Oxford, 2016), the role of curriculum and textbooks in creating appropriate learning environment is equally significant. The findings above illustrated that SRL has been embedded in school curriculum in China, including the textbooks which are the tools for curriculum implementation. Support through material resources would enhance the practice of SRL in this context of foreign language education.

The findings of this study also relate to the claims made by Heirweg et al. (2019) who state that due to beneficial effects of SRL in students learning, this approach of

learning has been increasingly adopted in the curricular processes, and subsequently has attracted scholarly attention in the recent decade. Developing students' independent and critical thinking abilities have been understood as core concerns of the curricular goals as well. The textbooks reviewed showed that SRL components have been part of the language learning strategies. The tasks provided aimed at facilitating students in managing and regulating their self-regulated learning, using their cognitive, affective, and metacognitive knowledge and strategies (also see, Oxford, 2016).

While there are claims about Chinese students being educated from Confucian-oriented learning style that rely heavily on teachers' instruction and memorization (Tse et al., 2022), the adoption of SRL in curriculum, textbooks and classroom instruction reflects China's focus on promoting independent learning habit in students. In this sense, there is an evolution of SRL in China as a methodological innovation and has been embedded in the education system. Lau and Chen's (2013) study comparing learning strategies of secondary school students from Beijing and Hong Kong found that students frequently used several SRL strategies to enhance their English reading that contradicted with the stereotypical belief about Chinese students being passive learners. Changes have been noticed in several forms, including the instructional practices and integration of contents that indicate national as well as global values, encouraging students to understand the self and others through multiple perspectives. Although SRL has been in existence in Chinese education system for long, it has been given higher priority by the contemporary curriculum and the textbooks in recent years, expecting Chinese students develop independent learning skills and confidence, especially in English language learning. For instance, both curriculum and textbooks emphasized development of self-regulated learning, aiming at promoting students' self-monitored self-controlled habit of learning. This skill helps them to engage in further learning process actively and guide them towards opportunities to develop creative abilities (Puustinen & Pulkkinen, 2001).

Hence, this paper illustrated that curricular provisions and textbook contents have a coherent relationship in promoting SRL strategies in China's secondary schools. Although the curriculum did not explicitly mention the SRL strategies and instructional procedures, the textbook tasks and contents illuminated and materialized the curricular goals of enhancing SRL skills in students by integrating the conceptual and methodological components that relate to the SRL process.

Conclusion

This study concluded that Chinese secondary schools' curriculum and textbooks illustrates the embeddedness of SRL in a coherent way. This provision supports Chinese governments' goal of educating students for independent learning to enable them to

cope with the rapidly changing modes of learning. While there are research arguments favouring the positive impact of SRL on improving students' academic achievement, the emphasis on SRL in the curriculum and textbooks provides convincing evidence for attempts to realize the goals. The cultivation of SRL skills in achieving the educational goals of developing self-regulated individuals is essential, and the same has been aimed by the curriculum and textbooks developed for secondary level.

The findings of this research imply that although the SRL research in the mainland China is still in its infancy, there have been significant developments in incorporating this approach in the teaching and learning materials, such as curriculum and textbooks. The findings of this research contribute to strengthening the relationship between policy and practice of SRL in China's secondary schools, drawing on the data analyzed from careful reading of the secondary curriculum and English textbooks for grades 7 and 8. Given its limited data obtained from limited sources, for example from the reading of the curriculum and the two selected textbooks used in China's secondary schools, the findings may not be generalizable to all contexts of China. However, they are definitely the pointers of increasing trend of SRL practice in educational system, supported by the government initiatives through curriculum and textbook materials. The findings of the study pointed towards the implementation of the SRL in classroom instruction. It is necessary to explore further how the curricular and textbook focus on SRL has been put into practice by teachers and students in the secondary level.

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Teachers and Students' Perceptions towards Using ICT in ELT in Model Schools

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Abstract

In this digital age, new technologies help us overcome geographical and cost barriers in teaching and learning. This study employs a mixed-methods research design to explore the perspectives of English Language Teaching (ELT) teachers and students towards the use of Information and Communication Technology (ICT) in English language classrooms in two model secondary schools located in the Darchula district. The sample comprised four teachers and 60 students, who were selected through purposive selection and simple random sampling respectively. The study utilized a set of questionnaires for the students and a semi-structured interview for the teachers to collect data. The thematic analysis was used to analyze the collected data to derive insights into the teachers' and students' perceptions and experiences of using digital technologies in English language classrooms. The findings suggest that while the participants have positive attitudes towards integrating ICT in English language classrooms, they also face significant challenges, such as a lack of adequate training and technical support, which hinder the effective use of digital technologies in teaching and learning. The study underscores the need for policymakers and educational institutions to provide adequate resources and support to facilitate the effective integration of ICT in English language teaching.

Keywords: ICT, ELT, model school, secondary level, perspectives

Introduction

The use of Information and Communication Technology (ICT) has gained increasing popularity in the field of education, including English Language Teaching (ELT), at the international level. UNESCO (2010) defines ICT as the forms of

technology that are used to transmit, process, store, create, display, share or exchange information by electronic means. The definition reflects the dynamic nature of ICT, as new technologies continue to emerge, and highlights the importance of electronic means in the modern world. According to Poudel (2022), the integration of ICT in ELT has the potential to enhance students' language learning experiences and improve their proficiency in English. However, the effective use of ICT in ELT depends on several factors, including teachers' attitudes and perceptions towards technology, the availability of resources, and the level of technical support provided by educational institutions. In Nepal, where English is taught as a foreign language (Shrestha, 2015), the integration of ICT in ELT has the potential to enhance students' language learning experiences and improve their proficiency in English. As Saud (2021) mentions, proper knowledge about computer and its application enables English teachers for technology enhanced language teaching and learning.

The English language has become a ubiquitous means of communication worldwide, and its use varies from country to country, with varying purposes and contexts. Nepal is a country where English is taught as a foreign language (Sharma, 2010). However, Saud (2020) argues English in Nepal to be taken as an international language. English Language Teaching (ELT) refers to English as a foreign language that is taught as a subject and a language in Nepal. The integration of ICT in ELT has become a crucial aspect of teaching and learning the English language in Nepal. Model schools are well-resourced institutions in Nepal that provide technical support, professional development, and administrative assistance to nearby schools (Ministry of Education, Science and Technology, 2016). These schools are in a unique position to implement and effectively use ICT in their ELT programs. Therefore, this study aims to explore the perspectives of ELT teachers and students towards the use of ICT in teaching English in two model secondary schools located in the Darchula district of Nepal.

The issue of integrating information and communication technology (ICT) effectively in English language teaching (ELT) has become increasingly important, especially in developing countries like Nepal where education and training budgets are often insufficient. While numerous studies have highlighted the benefits of technology on student learning in ELT (Panagiotidis et al., 2023; Gao, 2021; Paudel, 2021), unfortunately, only a few studies have investigated the use of technology in English language education in the Nepali context, and none in the context of the secondary-level model school of Darchula. Therefore, the main purpose of this study is to explore the perspectives of ELT teachers and students towards the use of ICT in teaching English in model schools in Nepal, with a focus on the Darchula district. The study aims to answer the following research question: How do the teachers and

students perceive the use of ICT in ELT at the secondary level of model schools? By exploring the perceptions of both teachers and students, this study aims to contribute to the understanding of the effective integration of technology in ELT in Nepal, which may inform policies and practices in the country's education system.

Literature Review

Technology is essential for effective language teaching and learning, especially in English language education where students often struggle. Previous research has shown that education is crucial for development, and technology can improve its accessibility and quality. Integrating technology in language teaching can help teachers use innovative methods that engage students and enhance their language skills. Cakici (2016) and Hidayati (2016) have conducted studies on the use of ICT in English language teaching. Cakici's study provides a comprehensive review of the advantages and disadvantages of using ICT as an instructional tool in EFL classrooms. The study highlights how ICT can contribute to the English learning process and identifies factors that influence its successful implementation. Meanwhile, Hidayati's article emphasizes that the integration of ICT can improve the effectiveness of Indonesian ELT when carried out in line with effective language teaching and learning principles. The integration of ICT allows for varied teaching and learning activities, more student-centred teaching styles, and access to authentic learning materials. Overall, these studies suggest that the integration of technology in language teaching can bring about positive outcomes if implemented effectively.

Bashyal (2022) contends that the availability of ICT has democratized access to a diverse range of knowledge across disciplines, enabling effective support for teaching the English language at all levels of education. However, Acharya (2014) highlights that the digital divide in Nepal persists due to financial constraints and the commercialization of education, hindering equal access to digital devices and resources in educational institutions. The COVID-19 pandemic has necessitated the development of infrastructure to facilitate the adoption of online education, but this shift has posed significant challenges in terms of limited digital skills, slow internet connectivity, and inadequate institutional support for integrating ICT into teaching (Shrestha et al., 2021). To address these challenges, context-specific support and professional development programs tailored to help teachers effectively integrate technology into their teaching practices are necessary (Caena & Redecker, 2019; Monteiro & Leite, 2021; Zhao et al., 2020). Such programs would provide teachers with the necessary skills and knowledge to effectively use technology to support English language learning.

The studies by Laudari (2019), Paudel (2021), and Rana (2018) provide insights into the use of Information and Communication Technology (ICT) in language

education in Nepal. The studies suggest that teachers generally have a favourable outlook on the integration of ICT in language teaching despite encountering some difficulties in employing new ICT tools and applications. The incorporation of ICT in language education offers students opportunities to access authentic learning materials and enhances their active participation in learning. However, Rana's (2018) research highlights the gap between ICT policy objectives in education and the challenges that constrain its implementation in rural primary schools. The synthesis of the reviewed studies suggests that there is a need to overcome challenges to realize the potential benefits of ICT integration in language teaching and learning in Nepal.

Gnawali's (2020) research examined the impact of incorporating ICTs in language classrooms at Kathmandu University, finding that students not only enhance their digital competencies but also pass on these skills to their future students after graduating. The study highlights the potential of digital literacies to transform English language teaching practices in Nepal. Similarly, Jha (2020) underscores the value of integrating ICT in higher-level online and distance education in Nepal, reporting that such efforts not only enhance learner capacity but also contribute to improved quality of life. Pangen's (2017) work further supports the potential of online education in Nepalese institutions, which has flourished because of positive initiatives to incorporate ICTs in education. Together, these studies highlight the importance of digital literacy and ICT integration in promoting educational quality and access in Nepal.

Ramorola's (2010) study highlights several crucial challenges in the integration of information and communication technology (ICT) in South African schools, including a shortage of specialist ICT teachers, inadequate experience with ICTs, insufficient support from education authorities, and a lack of technology resources. Similarly, Muslem et al. (2018) found that English teachers in Indonesia faced several barriers to ICT integration, including limited time, poor internet connectivity, and inadequate training and experience. Wright (2014) further emphasizes the need to address critical factors such as infrastructure, teacher training, motivation, and sustainability to effectively leverage the potential of ICTs in education. These studies highlight the significance of contextual considerations and addressing obstacles to maximize the benefits of ICTs in education. Thus, policymakers and stakeholders must recognize and tackle these challenges for successful ICT integration in educational contexts.

The advance of computer technology enables us to get a variety of Information and Communication Tools (ICT) increasingly being used in English language teaching. The Internet, Web 2.0, mobile phones and tablets, just to name a few, have a great impact on the English language teaching and learning process. It can expand equal access to learning, facilitate personalized learning, provide immediate feedback and assessment, enable anytime, anywhere learning, and improve communication and administration

(UNESCO, 2013). Many studies have also shown that digital technologies can improve the outcome of education and enhance students' engagement in learning (Barak et al., 2016; Wang et al., 2015; Barrs 2012; Blattner & Fiori, 2009). ICTs have indeed been gradually integrated into language classrooms in developed as well as developing countries.

However, it is found that technology is used widely in teaching the English language at different academic levels. The teachers find a computer, multimedia projector, laptop, mobile phone, pen drive, apps, and web resources very useful in teaching the English language. It is also found that teachers and students face various problems in using modern technology. But very few studies have been conducted in the Nepali context and none in the context of the secondary-level model school of Darchula regarding using technology in teaching English. This study intends to explore the perspectives of ELT teachers and students towards the use of ICT in teaching English and how effectively the teachers deal with these in their classrooms at the secondary level.

Methods and Procedures

The research paradigm and design of this study were multiparadigmatic and mixed methods, respectively. A mix of qualitative and quantitative data collection methods was utilized to obtain a comprehensive understanding of the research question. Qualitative data were obtained through semi-structured interviews with teachers and analysis of previous studies related to the topic. Quantitative data, on the other hand, were obtained through a questionnaire survey that utilized the 5-point Likert Scale (1932) and was administered to the students. Similarly, the research site consisted of two model secondary schools located in the Darchula district. The participants in this study were 4 teachers and 60 students, who were selected using a purposive selection and a simple random sampling method respectively for data collection. The teachers selected for interviews had at least a graduate degree in English and a minimum of five years of experience teaching English subjects. The selected students were from different classes in the academic year 2022.

To collect the data, questionnaires and semi-structured interviews were used as research instruments. The questionnaire consisted of ten statements with five response options ranging from Strongly Agree to Strongly Disagree. The teachers were interviewed in a formal setting, and the interviews were recorded using a mobile phone with the permission of the interviewees. The qualitative data obtained through interviews were analyzed using thematic analysis, while the quantitative data obtained from the questionnaires were analyzed using descriptive statistics. Overall, this mixed-method approach allowed for a more comprehensive and nuanced understanding of the research question.

Results and Discussion

The following section presents the results and discussions of the study on the use of technology in English language teaching and the challenges associated with it. The study utilized both quantitative and qualitative data collected from students' questionnaires and teachers' interviews. The major themes that emerged from the data analysis were the perceptions of both teachers and students towards the use of ICT in ELT and the challenges of using ICT in ELT classrooms. This section will discuss these themes in detail and critically analyze the findings to provide insights into the effectiveness of ICT in English language teaching and the ways to address the challenges associated with its use.

Results from Students' Questionnaires

In this study, the researcher used a structured questionnaire to collect data from the students regarding their views on the use of ICT in learning English. The questionnaire consisted of ten statements, and students were asked to rate each statement on a 5-Point Likert scale, ranging from strongly agree to strongly disagree. The statements focused on different aspects of ICT use in English language learning, such as its effectiveness in learning, its impact on class interest and attention, its promotion of communication skills development, and the relevance and motivation of teachers in using ICT. The students were also asked about their comfort level in an ICT-affiliated ELT classroom. The questionnaire aimed to gather insights into the students' perceptions of the role of ICT in English language learning.

Table 1

Students' Responses to the Questionnaires

Statements	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1. Technologies help in learning English.	12	36	12		
2. Technologies make the language class more interesting.	12	42	6		
3. I pay more attention when teachers use technology in class.	6	48	6		
4. Technologies promote the development of communication skills.	12	48			

5. Technologies have had a good impact on my learning the English language.	30	18	12		
6. Using a projector in English class is effective.	36	18	6		
7. I feel comfortable in a technology-affiliated classroom.	18	24	14		
8. Teachers use relevant technologies for teaching English.	12	36	12		
9. Teachers motivate me to use technologies for learning English.	6	42	12		
10. Teachers often engage me in using technologies for learning English.	6	36	18		

Table 1 shows that the students expressed their feelings and perceptions toward the technologies used in their class. They showed mixed perceptions. Most of the students (i.e., 60% and 70%) agreed “technologies help in learning the English language.” and “technologies make the language class more interesting.” Most of the students (i.e., 70% and 80%) said that they paid more attention when teachers used technologies in the class and technologies promoted the development of communication skills.

Similarly, 50% and 60% of the students strongly agreed that technology had a good impact on my learning the English language and that using the projector in a language class is effective respectively. The students felt comfortable in a technology-affiliated classroom, thought that teachers used relevant technologies for teaching language, and teachers motivated them to use technologies for learning the English language. Most of the students (60%) agreed the teachers often engaged them in using technologies for learning the English language.

However, they acknowledged that technologies make the learning environment easy and enjoyable. The findings showed that all the teachers used different types of technology according to the topic and content. In a technology-affiliated class, most of the students felt comfortable. They enjoyed the course with a laptop, smartphone, and projector. However, some of the students felt bored in the class.

Use of ICT in ELT

The data presented in Table 1 shows that the use of technology in English language teaching is generally perceived positively by students. Most students agreed

that technology helps in learning the English language and makes the language class more interesting. This suggests that incorporating technology in English language teaching can have a positive impact on students' learning experiences and motivation. Moreover, most students agreed that the use of technology in the class helped in developing communication skills, which is an important aspect of language learning. Students also felt comfortable in technology-affiliated classrooms, suggesting that the use of technology can create a positive and engaging learning environment. Additionally, the data suggests that teachers effectively utilized technology in their teaching, engaging students with various types of technology such as laptops, smartphones, and projectors. Teachers also motivated students to use technology for learning English. This highlights the importance of the effective integration of technology into language teaching and the role of teachers in encouraging and facilitating its use.

Challenges in Using ICT in ELT

Despite the positive attitudes towards the use of technology in English language teaching, the data shows that there are still challenges that need to be addressed. Some students felt bored in the class, indicating that technology should not be relied on solely as a means of engagement. Moreover, the data suggest that teachers may lack the necessary skills and training to effectively integrate technology into their teaching. This highlights the need for ongoing professional development and training for teachers to effectively use technology in the classroom. Overall, the data highlights both the potential benefits and challenges of using technology in English language teaching. Effective integration of technology requires proper training and support for teachers and should be used in conjunction with other teaching methods to create a varied and engaging learning experience for students.

Results from Teachers' Interviews

All teachers said that they used different technologies in their English subject classes. All of them used a computer or laptop, smart board, and multimedia projector. In addition, some of them used a mobile phone, the internet, websites and apps, tape recorder, and camera as well. Two of them did not know about a specific website for language teaching. Another two said they never think of using blogs, WhatsApp, Messenger, or Facebook for education. All the teachers stated that technologies help them to make language classes interesting and to prepare the class content.

As one of the teachers said, "Technology, especially the Internet, is great support for me to make my teaching interesting and effective." The teachers get new ideas about teaching English through the Internet which shows them various new ways of teaching English in the classroom, and it brings a new dimension to their tasks. It was found that in technology-affiliated classes most of the students feel comfortable.

However, in some cases, technologies have reduced students' opportunities of speaking and writing and students become less interested in using technology. In the beginning, they felt uncomfortable in class. They take time to adjust themselves in technology-affiliated classes. So, teachers had to face some problems in using technology in the classroom. Teachers have said that technology has a mixed impact. In most cases, the impact was positive as the teachers got help from technology. By using technology, they could make the class environment friendly and attractive for the students, but sometimes it had a slightly negative impact on teaching when some students cannot cope or concentrate on the class, and thus sometimes technology fails to achieve its goal.

One of the teachers remarked, "Technology has a negative impact on time management. It needs time to take a class with the help of technology." Teachers mentioned that they faced some problems in using technology in their classes. The teaching-learning system was not fully compatible with the use of technology. Students were not interested in doing any activities that would not appear in the examination. "Most of the students want to get good marks rather than learn something new," a teacher said. Sufficient resources were not available in all cases. Repairing a damaged machine was not easy when technicians were not available. Many teachers were not well-trained to use modern technology properly. They need others' assistance. Teachers are paid less.

Therefore, they usually cannot buy technological machines with their own money. The teachers suggested some solutions to the problems they usually face. They think motivation and support from higher authority, proper funding, and more teacher training are essential. Finally, the teachers have said that teacher training is very important for every teacher. Training on a workshop basis should be given at the beginning of the career of a teacher. A teacher strongly suggested, "There are no alternative ways except practical training to solve the problems."

Use of Technology in English Language Teaching

All the teachers interviewed reported using different technologies in their English subject classes, including computers or laptops, smart boards, multimedia projectors, mobile phones, the internet, websites, apps, tape recorders, and cameras. They all agreed that technology helps them to make language classes interesting and to prepare class content. Furthermore, they stated that technology supports them in getting new ideas and techniques for teaching English. However, some teachers reported that technology sometimes reduces students' opportunities to speak and write, leading to less student interest. They also noted that some students initially felt uncomfortable in technology-integrated classes and took time to adjust. Overall, the impact of

technology was mixed, with mostly positive impacts when teachers used technology to make the class environment friendly and attractive for students. However, some negative impacts were observed when technology failed to achieve its goal or when students cannot cope or concentrate on the class due to technological distractions.

Challenges in Using Technology in English Language Teaching

The teachers also mentioned several challenges they face when using technology in their classes. These challenges included problems related to time management, insufficient resources, and lack of training and technical support. They suggested solutions such as motivation and support from higher authorities, proper funding, and more teacher training to address these challenges. The teachers emphasized that teacher training is essential for every teacher and suggested practical training on a workshop basis to solve the problems. They also recommended that authorities should think about the development of teaching and support teachers both financially and technically to encourage them to use technology.

The results indicate that technology is an essential part of teaching English at the secondary level. Teachers largely depend on technology to update themselves and make their classes more interesting and effective. However, to keep pace with the rest of the world, teachers believe that technology should be made more user-friendly in their country. The authorities should come forward and support teachers both financially and technically and provide training and workshops to make them more active and help them understand how to use modern technology. The findings suggest that teacher training is critical to using technology effectively in language teaching, and practical training can help solve the problems faced by teachers. Overall, the use of technology in language teaching is a double-edged sword that requires careful consideration of its potential benefits and drawbacks.

Triangulation is a research method that involves using multiple data sources or methods to validate and strengthen the findings of a study. In the case of the current study, triangulation can be done by comparing the results from the students' questionnaire and the results from the teachers' interviews. The students' questionnaire provided quantitative data on the students' attitudes towards using technology in English language classes. The questionnaire showed that most students felt comfortable using technology in their classes, and they believed that technology made their classes more interesting and effective. However, a significant number of students also felt that technology reduced their opportunities to speak and write in English, and it made them less interested in using technology. The questionnaire also revealed that some students had difficulty adjusting to technology-affiliated classes, and they felt uncomfortable in the beginning. Furthermore, the students' questionnaire showed that students were more interested in activities that appeared in the examination, and they focused more on getting good marks than on learning something new.

The teachers' interviews, on the other hand, provided qualitative data on the teachers' experiences of using technology in English language classes. The interviews showed that all teachers used different technologies in their classes, such as computers, smart boards, multimedia projectors, mobile phones, the internet, websites, apps, tape recorders, and cameras. The teachers believed that technology helped them to make their classes more interesting and effective, and it gave them new ideas about teaching English in the classroom. However, some teachers also mentioned that technology harmed time management, and it was sometimes difficult to use in the teaching-learning system. The teachers also faced problems with repairing damaged machines and lacked proper training in using modern technology. They suggested that teacher training and support from higher authorities were essential for the effective use of technology in the classroom.

By triangulating the qualitative and quantitative data, it can be seen that there is some overlap between the students' and teachers' perceptions of technology in English language classes. Both groups agree that technology can make classes more interesting and effective, but there are also concerns about its negative impact on speaking and writing opportunities, concentration, and time management. The quantitative data from the students' questionnaire provides more specific details about these concerns, while the qualitative data from the teachers' interviews offer insights into the broader challenges of using technology in the teaching-learning system.

Overall, the triangulation of data in this study shows that while technology can enhance English language teaching, significant challenges also need to be addressed. Both students and teachers believe that proper training, support from higher authorities, and sufficient resources are essential for the effective use of technology in the classroom. By considering these factors, policymakers and educators can work together to develop strategies that make technology more friendly and useful for English language teaching in the country.

Conclusion

In personal insight, this study has allowed me to gain a better understanding of the challenges and opportunities that arise when integrating technology into language teaching. The findings have highlighted the importance of teacher training and digital literacy and the need for adequate infrastructure and support for technology integration. It has also provided insight into the perspectives of both teachers and students on the use of technology in the classroom, which can inform future research and policy decisions.

This study contributes to the literature on technology integration in language teaching by providing insights from a relatively understudied context. The study draws from the multiparadigmatic research paradigm and mixed research methods, contributing to understanding the complexities and nuances of technology use in language teaching. The study highlights the importance of considering the specific context when designing technology integration programs and provides a framework for future research in similar contexts.

The implications of this study are significant for English language teachers, school administrators, policymakers, and researchers interested in technology integration in education. The findings suggest that teacher training and digital literacy programs are essential for effective technology integration. School administrators and policymakers need to provide adequate technological infrastructure and support to enable teachers to integrate technology into their teaching practices. Researchers can use the study's framework and findings to explore other aspects of technology use in ELT, such as the impact on student motivation and language learning outcomes. Overall, this study provides valuable insights into the challenges and opportunities of using technology in language teaching in a specific context and has implications for future research and practice.

Based on the findings of the study, the following recommendations can be made for the successful implementation of technology in English language teaching:

- Teachers should use relevant technological tools to teach different language skills or topics.
- Topics and objectives should be clarified before using technology so that students can easily understand the various uses of technology.
- Modern technical ways should be followed in entertaining manners for effective learning and teaching of the English language.
- English teachers should encourage their students to use technologies in developing language skills.
- Reconsideration of the current textbook, national curriculum, and testing system for technology should be introduced.

- Training for one-to-one or small group tutoring is necessary so that teachers can develop computer literacy skills and be competent in different modern technologies in their context.
- Educational institutions should modernize their technical instruction capabilities by using new technologies and laboratories to support the teaching and learning process.

These recommendations can be useful for English language teachers, school administrators, and policymakers interested in the integration of ICT in ELT in the Darchula district and other similar contexts. By following these suggestions, English language teaching can be made more effective, engaging, and beneficial for students.

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Non-Human World in Ernest Hemmingway's *The Old Man and the Sea*

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Abstract

This study explores human attitude towards non-human world in Ernest Hemmingway's *The Old Man and the Sea*. The narrative in Hemmingway's masterpiece *The Old Man and the Sea* integrates human and non-human world. However, in this paper, I assume that Hemmingway displays contradictory attitude towards non-human world. The study uses post humanism as a theoretical lens. It employs the critical insights forwarded by Deleuze and Guattari, Val Plumwood, and Donna Haraway as the theoretical parameters to analyze the selected text. The study involves the exploration of the nature of the relations between the entities human and animal. Besides, the study seeks relationality, the interspecies connection, along with the recognition of embodiment, instinct and finitude as the shared ontological grounds in the selected narrative. The study suggests that Hemmingway offers both anthropocentric and biotic attitude towards non-human world.

Keywords: non-human, biotic, anthropocentric, harmony, relationality

Introduction

Eco-criticism is the study of the relationship between literature and the physical environment (Glottfelty et al, xvii) with an attempt to seek the attitude and values expressed in literary works related to human and nonhuman interconnectedness. "Ecology," observe Steward T.A. et al "wants to know how organisms interact with each other"(4). The range of ecology encompasses "strictly biological to concern with strictly physical phenomena"(6). Ecological concerns are not the concerns about environmental problems only. Instead, it is an integrated approach to respond to the entire ecosystem. Arne Naess' notion of ecosphere or biosphere includes, "individuals, species, populations, and habitats, as well as human and nonhuman cultures"(4) and

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the intimate relationship for the well-being and flourishing of human and non-human life on earth. Humans and nonhumans share the same Earth and planet as members of the ecological community. However, anthropocentric attitude does not treat nonhuman on equal par. This research is prompted by some of the questions the researcher has raised in the field of Human- Animal Study. Is literature a proper avenue to discuss the concerns of human-animal relations? How is the entity animal conceptualized and produced in literature? How does one access the entity animal? How the relations between human and animal maintained in Hemmingway's *The Old Man and the Sea*?

Animals are ubiquitous- in their natural habitats, in farms, factories, zoos, labs and in literature. Literature and literary analysis are human phenomena that mostly orbit around human affairs. Literary animal analysis examines the ways animals are projected in literary works. Kenneth Shapiro maintains that "the critical stance of Human Animal Studies(HAS) scholars explicates and evaluates the objects of its study, Human Animal Relation(HAR), in ethical terms—particularly on the value of valuing animals for themselves" (799). According to Shapiro, Human –Animal Relation is the object of study of HAS. Shapiro's emphasis is to evaluate and analyze this relation in ethical terms that values animals for what they are rather than what human think and construct of them.

The question whether literature can be a proper avenue to discuss the concerns of human-animal relations is a significant question to deal with. Although literary animals are the product of creative imaginings and are similar to other cultural constructs, they are not all fictitious. Deleuze and Guattari maintain that literature is an assemblage of multiplicities and strata, of intensities and constructions and selection (4). Deleuzian "assemblage" is the assemblage of the social and the material elements. In addition, Deleuze and Guattari believe that the book forms "the rhizome with the real world" (11) and have "an aparallel evolution" (11) in which each invokes the other and tells the stories of relations. In Deleuzian term, a piece of literary work "deterritorializes and reterritorializes" (11) the world at a time. The literary constructions and the world, in this sense, make up each other. Thus, literary constructions of humans and animals, the relation between them and the analysis are believed to uncover the real world issues pertaining to human- animal relations. In Deleuzian line, a literary study on animals is the act of 'reterritorializing' animals through words. It can vocalize the issues of animals and serve to establish animals as the actors of the world. Thus, literature not only provides a location and subject to discuss the real world problems of human and animal but also helps sensitize the central issues of animals. Moreover, the inspection of the relations between human and animals in literary works corresponds to the inquiry of the problems of the real world animals. Therefore, pursuing scholarship on Literary Animal Study is also an integral part of literary study and criticism.

The literary works that lend space to animals are the study object of literary animal studies. However, Paul Waldau claims that animals in literature “often remain in the margins of artistic endeavors”(128). Waldau takes animals as the marginal entity in creative spaces like literature and art. Waldau’s question is about human centrality in creative domain. Similar to Waldau, Kate Soperraises concerns about the ‘intellectual endeavors’ of representing nature and its entities. Soper claims that discourses on nature and human relation to non- human world are always “historically mediated, and indeed ‘constructed’, through specific conceptions of human identity and difference” (4). Soper’s ‘historically mediated or constructed’ relationship’ assumes the interplay of multiple interests of human in representing them in literature. Animals in literature are human constructs akin to their construction in advertisements, films, cartoons, toys and paintings. Since animals cannot speak and tell their experience, it is human who carry the task of representation or raising voice for them. Waldau’s question of marginality of animals in artistic creation and Soper’s worry over the possibilities of betrayal or prejudice in representation are related. Thus, both Waldau and Soper invite the entity human under scrutiny in terms of its relation with animal. In this sense, literary animal study is a human affair yet ‘the affairs’ are not outside the critical scrutiny. Therefore, literary animal study also calls for a critical inspection of the issues of marginality and representation along with the critiquing of human affairs in literature.

Authors, through their works, offer contradictory as well as perplexing viewpoints towards nature. In many cases, authors swing both ways and offer anthropocentric as well as bio centric outlook in their works. Paul W. Taylor claims that human attitude towards non-human world depends on “the way we look at the whole system of nature and our role in it”(99). Taylor forwards four basic cores of bio centric outlook: the belief that “humans are members of the Earth’s Community of Life”(99); that there is a “system of interdependency between all living things” for existence; that “each organism is unique individual pursuing its own good in its own way” and that “humans are not inherently superior to other living things”(100). Bio centric outlook of Taylor not only accepts the interdependency between human and nonhuman world but also denies the supremacy of human beings over non humans. In contrast with bio centric viewpoints of Taylor, Nicholas Agar argues that bio centric argument is an impossible ethic to apply since it denies the fact that “there ever are any morally significant interests or needs to be taken into account” (165). Agar uses the term *end-interdependence* to counter bio centric system of interdependence between living things which he believes is “ethically less demanding”(166). Agar’s argument establishes human supremacy over other creatures and promotes more practical and utilitarian perspective towards nonhuman world. Agar opines that “the other side of end-interdependence is *conflict*. Here, the ends of objects tend to exclude one another;

the achievement of A ends rules out the achievement of B ends” (166). Agar takes conflict between the elements of nature as a natural outcome of end interdependence where one survives at the cost of other’s exclusion. Thus, there always exist two possible relations between human and non-human world: of harmony or of conflict. In case of ambivalence, both go along the same line creating confusion on attitudes of the author towards nature. In this paper, I assume that Earnest Hemmingway presents contradicting attitudes towards nonhuman world.

Theoretical Grounding

The scholars of literary animal studies come across range of theories in analyzing human-animal relations. And it is even more difficult to pin down a particular approach out of the vast ranges. Regarding the question of accessing animals in literary studies, KaryWeil, in “A Report on the Animal Turn” identifies three distinct trends or moments in literary and critical theory- the linguistic turn, affective turn and ethical turn (4). Weil maintains that the theoretical lens, forwarded by modern and post-modern philosophers, that focuses on representation of animals through language fails to get into the question of animals as animals (9). Employing language to excavate the stories of disparities and inequalities in human-animal relations projected through the narrative of the texts has its own limitations. However, it is equally challenging to see animals outside words. Under such dilemma, the animal question needs to be brought into the realm of the socio-material realities which is assumed to be contributing in accessing the ontology of the relations between the entities human and animal. In such situation, I ground my thinking in the works of the new materialists’ branch of post human philosophy for the analysis of the selected texts.

Post humanism pays attention to a “more-and-other-than-human world” (Taylor 2). Susanne Gannon writes that more-than-human requires the researchers to search beyond taken-for-granted rational, cognitive contexts to attend to surprising configurations of bodies, things, affect, matter which collide to form new assemblages and possibilities (128). As the posthumanist researchers adopt various descriptions for their approaches – including ‘relational materialism’, ‘feminist materialism’, ‘new empiricism’ (Gannan 133), the researcher will use the socio-material approach/‘relational-materialism’ which is grounded in the critical insights forwarded by Deleuze and Guattari (notion of becoming, assemblage and affect), Karen Barad (material entanglement/diffractive methodology), RosiBraidotti (The Post Human Knowledge), Val Plumwood (blind spot of centrism) Roberto Esposito (body the impersonal) and Donna Harraway (situated knowledge). The theoretical parameters selected to analyze the selected texts articulates the notion of relational materialism for the analysis.

Relational materialism (also called material –semiotic entanglement) is a post humanist approach which believes that discourse and matter are mutually implicated in the unfolding of the meaning. Karen Barad, the post-human philosopher, asserts that matter and meaning cannot be dissociated, not by chemical processing, or centrifuge, or nuclear blast. Mattering is simultaneously a matter of substance and significance (3). It is a non-hierarchical approach to study relations between human and non-human others (MacLure 658). In this regard Cary Wolfe urges to remove meaning from the ontologically closed domain of consciousness, reason, reflection, and so on (Introduction xxv). Similar to Wolfe, Rosi Braidotti in *The Post Human Knowledge* asserts that human needs to be assessed as materially embedded and embodied, differential, affective and relational (6). She defies abstract universalism of humans as hegemonic, imperial and enlightenment driven mode (6) and takes embeddedness and embodiment as the reality of all living beings. Another materialist Roberto Esposito, in *Persons and Things*, maintains that human body is the “ follow channel and the operator” (4) of relations and it is the subject to instinct and passions where the animal within inhabits (7) and the “individual and collective experience are united” (11). Esposito notion of impersonal denies the traditional categories of human and animal. Donna J. Haraway, an American Professor of biology and animal studies, concedes that “We are, constitutively, companion species. We make each other up, in the flesh” (3). Like other feminist and post humanist theorists, Haraway also holds the view that “subjects, objects, kinds, races, species, genres, and genders are the products of their relating” (7). According to Haraway, the invention of tropes like subject, object, gender, and species are the categorical terms that have served to establish the divergence between human and non-human animals. The researcher will use the insights of these post human philosophers for the analysis of the selected texts.

Critics on Hemmingway’s *The Old Man and the Sea*

Both the entities human and animal are the socio-material facts of nature. And they are in relation to each other as the actors of the larger ecological system. However, the ways these biological facts configure in the world of literature and western metaphysical traditions is the fundamental question in this study. The study, in this section, examines the empirical foundations of the relations between the entities the human and the animal in the text scrutinized.

Ernest Miller Hemmingway, an American novelist and short story writer, in his novella *The Old Man and the Sea* (1939) presents a story of an old fisherman Santiago who lives in the coast of Havana. The story also integrates non- human world- nature, sea, fish, turtles, wind, African coast, lions, and weeds- in its narrative string. Hemingway as writer is not traditionally associated with environmentalism (Jones 51). However, in *The Old Man and the Sea*, he not only seems to present his

nature awareness but also tells the stories of humans and their relationship with non-human animals. There have been voluminous readings on this work of Hemmingway ever since it was published.

Leo Gurko seeks affirmative note in Hemmingway's *The Old Man and the Sea*. Gurko notices that Hemmingway's protagonist Santiago holds "heroic impulse" (379). In an optimistic tone Gurko writes, "world is a continuous skein of possibility and affirmation" (379). Gurko regards Santiago as a heroic figure as he overcomes the obstacles with his limits and makes ultimate efforts to achieve triumph over marlin, the fish. However, Gurko sounds conventional in his attitude towards nature as he treats nature as an opponent against which Santiago proves his heroism. In brief, his analysis of the text reinforces the notion of human centrality and species hierarches.

Clinton S. Burhans contradicts Gurko in his reading of Hemmingway's *The Old Man and the Sea*. Burhans maintains that "solidarity and interdependence" (450) rather than individualism and heroism, that Gurko claims, pervade in the novel. Burhans maintains that isolated individualism and pride drives man beyond his true place in the world (453). He employs the trial of Santiago to establish the point that human beings are the part of the universe and have a specified role and space in it and its basis, believes Burhan, is his tragic vision of life (455). Although Burhan holds different views than that of Gurko, he is not far from being anthropocentric as well. Like Gurko, Burhan's emphasis is Santiago and his adventures not the marlin, the non-human entity.

In his essay titled "Man or Fish?: An Eco-critical Reading of *The Old Man and the Sea*", Allen C. Jones makes an evaluation of Hemmingway's engagement with nature. Jones' emphasis lies on the way nature is represented in the text and the ways literature and literary discussions define the entity human (52). Jones concludes that novella's final image of nature leaves the audience think about the position of human in nature. Although Jones is justified in his eco-critical scrutiny of Hemmingway's classical novella *The Old Man and the Sea*, his eco-critical analysis is less concerned with the issues of aquatic lives in the sea. In addition to this, Jones makes no further effort to establish the dynamic role animal, here marlin, plays in the story.

The reception of Hemmingway's *The Old Man and the Sea* has been diverse. It can be inferred through these readings that the novella seems to bear anthropocentric and abiotic attitude towards non- human animals. On the one hand, it seems to deal with the human singularity, superiority, dominance. On the other hand, it also talks of the existential limitations and integrity between creatures within the story line. Hemmingway's to and fro approach towards non- human animal is intriguing for the researcher also. Through his classic hero Santiago, who seems to swing both ways in terms of his attitude towards non-human world, Hemmingway as a writer invites the

assessment of his attitude towards non-human animals. Thus, the researcher in this narrative observes and analyses Hemingway's attitude towards non-human animals and searches for the relational possibilities between human and non-human animals.

The Non-Human in *The Old man and the Sea*: Analysis

In *The Old Man and the Sea*, Hemingway shows his eco-awareness bringing together the interaction between human and the non-human world. However, he presents conflicting attitude towards non-human world. Hemingway's protagonist Santiago is a fisherman who spends most of his time away from home fishing in the sea. The sea in the novella forms the backdrop of action as well as serves as a home for Santiago. It is "cheerful and undefeated" (1) like the eyes of Santiago that have "the same colour as the sea" (Ibid) but it is "cruel" for the delicate birds because they have "harder lives" (8) against the sea. However, sea is also the source of living for Santiago as he makes his living fishing. Santiago and his friends talk about the sea, its current, depth and the weather when they are resting. Santiago dreams of "places . . . and of the lions on the beach" (8). He is "very fond of flying fish as they were his principal friends on the ocean" (10) but feels sorry for the delicate birds for their hard struggle against sea tides. Hemingway's reflections on nature, sea, fish, turtles, wind, African coast, lions, and weeds establish that he has vivid sort of nature awareness along with deep reverence for it.

Hemingway shows deep reverence for biotic life and abiotic nature through his protagonist Santiago. The biocentric notion of deep ecology forwarded by Arne Naess maintains:

So-called simple, lower, or primitive species of plants and animals contribute essentially to richness and diversity of life. They have value in themselves and are not merely steps toward the so-called higher or rational life-forms. (5)

Naess holds the view that all things in the biosphere have an equal right to live and blossom and "richness and diversity" of life. In this regard, Santiago understands his role in this earth and the value of other non-human world also. He assures himself, "You were born to be a fisherman as the fish was born to be a fish" (39); which testifies his respect for his profession and respect for the non-human world. Santiago and the other fishermen respect the calm and placid nature of the sea and believe that "It was considered a virtue not to talk unnecessarily at sea" (14). Talking is a human affair and nature is known for its serenity not for artificial noise human beings produce. Hemingway has good regards for this virtue of nature. Besides, Santiago appreciates the elegance and nobility of the marlin, the fish Santiago succeeds to hook. He asserts, "Never have I seen a greater, or more beautiful, or a calmer or more noble thing than you, brother" (35). Santiago is convinced that the dignity and behavior of marlin is

even greater, “There is no one worthy of eating him from the manner of his behavior and his great dignity” (28). Santiago is aware that he is a fisherman and his job is to kill the fish but his love and respect for the marlin is constant. He declares, “You loved him when he was alive and you loved him after. If you love him, it is not a sin to kill him” (39). He spends three successive nights alone with the marlin and has the feeling of empathy for it, “I wish I could feed the fish” (22). In addition to the respect for the sea and the fish, Santiago has the sense of love for the birds that fly in the sky above the sea in search of food. He urges “Stay at [his] house if [they] like, bird,” and regrets that he is “sorry [he] cannot hoist the sail and take [them] in with the small breeze that is rising” (20). Santiago’s concern for his necessity as a fisherman and his duty as a member of the ecosphere is reflected in his love and empathy for the fish and the birds that fly. And he shows his deep respect for the sea by not speaking unnecessarily in the sea.

However, Hemmingway presents the “divided consciousness” (Sanders 184) of his protagonist Santiago whose psyche dwells between human and non-human world. Santiago spends his days and nights in the open sea against the confines of human affairs, however, he is never away from human world and its affairs. He misses the boy, Manolin, who accompanies him for first forty days of his fishing. In his eighty fifth day, he succeeds to hook a huge marlin with whom he spends three successive nights on the sea. Despite being situated within nature, Santiago feels lonely in the sea and very often misses the presence of the boy, “I wish I had the boy. To help me and to see this” (Ibid). He misses many things of human world, “I wonder how the baseball came out in the grand leagues today, he thought. It would be wonderful to do this with a radio” (Ibid). Santiago’s recounting of his relations with the boy and his concern for radio and outcome of basketball matches shows his state of mind which is occupied with the affairs of the worldly life where relations and activities like baseball and market value of the marlin complement the raw nature. Santiago can never be away from the intervention of human world “against the overarching background of nature” (Sanders 183) which prevents him from the appreciation of the grandeur of nature itself. In this sense, Hemmingway merges both human and non-human world into his narrative where human affairs dominate the psyche of his central character Santiago.

Besides, Hemmingway, in *The Old Man and The Sea*, takes ambivalent attitude towards sea since he treats it both as male and female. Santiago’s friend “spoke of her as *el mar* which is masculine. They spoke of her as a contestant or a place or even an enemy” (10). However, Santiago holds patriarchal belief and “thought of the sea as *la mar* which is what people call her in Spanish when they love her” (Ibid). Eco-feminists argue that equating nature with female is a masculine attitude towards nature which allows the male to exploit both women and nature. Janis Birkeland notes,

“Ecofeminism is a value system, a social movement, and a practice . . . that explores the links between androcentrism and environmental destruction” (18). Hemmingway’s protagonist, Santiago, holds androcentric belief where women and nature are meant to serve men with great favors. Hemingway also seeks the nexus between women and the sea:

But the old man always thought of her as feminine and as something that gave or withheld great favours, and if she did wild or wicked things it was because she could not help them. The moon affects her as it does a woman, he thought (10).

The “wild and wicked things” of the sea is analogously treated with the irrational flaws of the women with a view that the flaws and irrationality of the sea and woman are common features caused by the effects of moon. It is the fact that full moon produces tides on the sea but the impact of moon on women is no more than a prejudiced belief towards women. As Hemmingway puts, the sea is both masculine and feminine. However, when it is regarded as a competitor in the field, it gets positive attributes of masculinity where as it is associated with negativity or feminine attributes whenever she gets wild and wicked in her behaviors. Furthermore, Santiago relates the behavior of the hooked marlin with masculine traits, “He took the bait like a male and he pulls like a male and his fight has no panic in it” (17) which reflects his androcentric attitude towards the particular way of doing things. In his association of the marlin’s activities with masculinity, Hemmingway takes for granted that the certain ways of doing things with masculine traits which is gender biased in reality.

The possible relationship between human and non-human world can either be of harmony or of conflict. In *The Old Man and The Sea*, Hemmingway explores both the possibilities. His protagonist Santiago lives by the coast and depends on sea for survival yet has harmonious as well as conflicting relationship with the elements of nature. Scott Russell Sanders believes, “How we inhabit the planet is intimately connected to how we imagine the land and its creatures” (194). Santiago assumes harmonious relationship with the sea that “gave or withheld favor”(10) and he is “happy to see so much plankton because it meant fish”(12) and finds affinity with the delicate birds that seek shelter in his boat. But his attitude towards the marlin he catches is not of harmony but of conflict. He assumes the role of the exploiter of non- human world and affirms his superiority, He concedes, “Now we are joined together and have been since noon. And no one to help either one of us” (18). Bandana Shiva blames science and technology as the root cause of the subjugation of nature. She opines, “[science and technology] removed all ethical and cognitive constraints against its violation and exploitation (Introduction xiv). Nature as a source of raw material for human progress has licensed human beings for its exploitation to the fullest potential. Shiva accuses

renaissance notion of development and progress for the uncontrolled exploitation of nature. Santiago connects himself with the fish not out of empathy or reverence but with a motive to kill it and sell it in the market. Besides, Santiago holds the view that “man is not made for defeat,” and affirms that “[a] man can be destroyed but not defeated”(38). The notion of defeat presents him in conflict with the fish, the marlin, he hooks in his bait. He struggles to overpower and kill the marlin and feels joy on his victory of killing. However, he regrets the killing afterward, “I am sorry that I killed the fish though” (38). Santiago has mixed feeling about human supremacy over nature, “But I was more intelligent than he was. Perhaps not . . . Perhaps I was only better armed” (38). Through such line, Hemmingway offers contradictory views towards animals. He presents Santiago as a character who swings both ways in terms of his attitude towards non-human world, “they are not as intelligent as we who kill them” (23). There is reverence for nature at the same time there is a sense that human beings are always in conflict with nature and are undefeatable also. Besides, Santiago does not hesitate to establish that human beings are not only more intelligent but also better armed than other creatures of the world. Yet, he accepts the greatness and nobility of the fish, “they are more noble and more able” (23) than the human beings. He invites the fish to accept his challenge, “Come on and kill me. I do not care who kills who” (35). It makes very difficult to infer a clear view of Hemmingway towards non-human world. His opinions on human and non-human relations are filled with contradictory ideas that display both harmony and hostility towards non-human world.

In addition, Hemmingway holds both biotic and utilitarian perspective towards non-human world which intensifies the ecological ambivalence to a complex level. His protagonist Santiago in *The Old Man and The Sea* claims, “He is my brother. But I must kill him and keep strong to do it” (22). He is filled with the sense of interconnectedness which makes him address the fish as his “brother” but his need to kill it and sell it in the market for his living makes him declare that he must kill it. Holmes Rolston claims that humans “bring all the value into the world” (25) and treat nonhuman world as “our sources”(Ibid). Moreover, the post human philosopher Val Plumwood argues that a centric and self- enclosed form of reason/rationalization fails to integrate larger body and ecological support base which only promotes the human distance from the nature as the Other(4). Plumwood opines that such logic denies the dependencies of beings on each other and strengthens the divergence in human animal-relations as well. Plumwood takes ‘reason centred culture of west’ as a ‘hazard to survival’ since it promotes domination and commodification of other and encourages unethical practices towards non-human lives (5). Reason (rationalization) for Plumwood is a culprit in human-animal relations since it brings othering of the entity animal.

As a solution to current ecological crisis of reason, Plumwood suggests “(re)situating humans in ecological terms and non-humans in ethical terms” (8-9). Plumwood’s resituating of human assumes the existing divergence between species of nature. In addition, his call for bringing non-human within the sphere of ethics also presumes that human activities towards non-human lives are unjustified. Plumwood, in a way, presents the ecological crisis and a way out through his analysis of the crisis of reason. My take in this is that Hemmingway also presents a crisis of reason in human –animal relations. For Santiago, the fish is his resource of living yet he keeps addressing it as his brother. Furthermore, his utilitarian perspective of killing the fish takes another sense when he accepts, “You did not kill the fish only to keep alive and to sell for food, he thought. You killed him for pride and because you are a fisherman” (39). Santiago contradicts with the notion that human beings exploit nature to serve their needs only. Instead, he associates the act of killing with the pride of a fisherman. As a fisherman by profession, he must kill the fish to satisfy his ego and show his fellow fisherman that he is still capable of performance despite being old. Nature in this sense becomes a battle field for the contestants of human world who exploit it to satisfy their ego. Besides, human beings treat nature as a source of pleasure also. Santiago “loved to see the turtles eat [bubbles] and he loved to walk on [turtles] on the beach after a storm and hear them pop when he stepped on them with the horny soles of his feet”(13). Stepping on turtles cannot be a matter of joy in normal sense because it hurts the innocent turtles physically. However, Santiago finds pleasure in their painful popping when he steps on them with his horny soles. This shows his indifferent attitude towards the pain of the fellow creatures. At the same time it makes him a complex character both careful and inconsiderate towards the suffering of the other creatures. Hemmingway presents Santiago as a moral being who has the feelings and respect for the nature. But at the same time, he shows Santiago as a rational being who understands the necessity of killing the fish for a fisherman.

Conclusion

Underscoring the logic of dichotomy and rationalization leads to divergence between human and non-human world as it establishes two sides or versus which resists the possibility of cohesion among species. Human beings need to acquire a habit that shows reverence towards other life forms in theory and practice. The convergence between human and non- human animal is possible in conceptual sense when the entity human adopts multiplicity. The call is not to treat ‘human versus animal’ but to show faith and reverence in human and animal both, including their differences and resemblances. In this sense, Earnest Hemmingway in his masterpiece *The Old Man and The Sea* brings the human and non-human world together. However, Hemmingway takes both utilitarian and ethical stand to deal with the non-human world. His protagonist

Santiago shows ambivalent attitude towards non-human world. He considers himself better armed and more intelligent than the fish yet he accepts the fact that humans are not nobler and greater than other creatures of the earth. Hemmingway presents Santiago with the sense of environmental ethics which makes him respect the nature and other beings as brothers. At the same time he shows his hero Santiago as a rational being who knows what he has to do as a fisherman. In conclusion, Hemmingway swings both ways presenting him as the writer who values nature and has deep reverence for it. At the same time, Hemmingway also seems to be presenting himself as an anthropocist who firmly values human supremacy and regards human as an undefeatable entity of nature. In conclusion, the novella, *The Old Man and The Sea*, bears contradictory testimonies of human attitude towards non-human world in it.

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Response to Issue-Based Social Movements in Nepal: Analyzing Dr. Govinda KC's Satyagrah

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Abstract

Issue-based movements can generate strong responses in the social and political domain. Such movements, provided with an acknowledgement of impact and integrity, draw enough response from the civil society and the people in power. The main object of this paper is to know the social reality behind the issue based social movement of Dr. Govinda KC in Nepal. This is to answer a question why such reality exists and how the movement was addressed by the stakeholders. This qualitative analysis based on literature search, media monitoring and key informant interviews, finds that Dr. KC's satyagraha had a larger public response and was taken as a commitment to the truth and social-justice issue in Nepal. However the government response, at some points, was seen from only one side of the power struggle. The government response to the peaceful demands that was highly supported by civil society was with unwanted delay, attempt of diffusion, and even with efforts for branding the civil society campaigners with political tools and using that attack as a way to detract from the popular demands challenging government's democratic accountability.

Keywords: Democratic governance, civil society, social justice

Introduction

Social movements are non-institutionalized entities through networks (Saunders, 2007) and are collective actions by significant numbers of individuals for social change (Yadav, 2015). In social movements, as informal networks of interaction with shared beliefs, people are mobilized on the basis of communication around continuous themes through frequent use of various protests (Porta & Mattoni, 2016). Social movements work with reference to groups and organizations outside the mainstream

political system (Yadav, 2015). Such non-political groupings, loosely understood as civil society expected not to shoulder the responsibilities of political class but with the role to make demands, provide inputs for policy making in the form of information and recommendations, and to protest when required, so that the state is structured and enabled to function according to the mandate given to it by its people (Panday, 2006). Such an environment is expected within a democratic governance and rule of law.

In democratic societies, issue-driven social movements create wider curiosity. They start at a certain point but turn into nationwide phenomena once supported by individuals or group(s) with shared ideas, rather to say, communicated ideas. In a social context, when such movements lack any single formal organization, distinct leadership and any known source of support to provide the movement with any resources, they interestingly achieve the attention and response of a larger audience. Samaratunge et al. (2008) when examined different factors' influence on public management and the state of public accountability in selected East Asian and South Asian countries, argued that the state of civil society was one of the most significant contextual factor besides the political history, the pattern of economic development, the nature of political leadership, the capability of the administrative system, the capacity of the existing institutions to influence the accountability practices in those countries. Similarly, in a case study of Morocco on the constraints of strengthening public sector accountability through civil society, Bergh (2009) conceptually presented, three common elements of accountability i) answerability as the obligation of public officials to inform and explain what they were doing, ii) enforcement which was the capacity of the accounting agencies to impose sanctions on the power holders who violated their public duties, and iii) receptiveness as the capacity of the government officials to take into account the knowledge and opinion of the citizens.

Efficiency and popularity of modern democratic governance depends on its transparency and accountability in public service delivery. Accountability of the public officials ensures good governance (World Bank, 2004). Transparency and accountability involves the government's relationship with society and need for a greater participation of citizens (Lyrio et al., 2018). Transparency is the unfettered access to timely and reliable information on decisions and performance, and accountability is the mechanism to report on the usage of public resources and the consequences for failing to meet the stated performance objectives. This makes transparency and accountability two interrelated and mutually reinforced concepts that are the prerequisites to effective, efficient and equitable management in public institutions (UN 2014). Transparency is often explained as a watchword and agenda of professed relationship between institutional openness and public trust of the twenty first century liberal democracy, that helps respond better to citizens' distinctive needs (Moore, 2017). Transparency

and accountability have emerged as key ways to address both developmental failure and democratic deficit (Gaventa & McGee, 2013). These authors further argued that after the wave for democratization in the twentieth century, the contemporary time is to 'deliver the goods' in terms of material outcomes. Such movements or initiatives demanding larger accountability and transparency can be variously termed as social accountability, citizens-led accountability or demand side accountability designed for the improvement of transparency and access to information with other ways of holding to account, the state and its agents or any service provider, including those in the private sector (Gaventa & McGee, 2013).

Dahal (2004) argued that a major achievement of Nepal's democracy is the growth of critical mass in every social group, and new social movements; as the beacons of post-modern and post-industrial or post-capitalist society, have produced a critical mass of conscious people, inspired by the non-hierarchical, participatory form of democracy, human rights, social justice, environmental preservation and peace, outside the hegemonic class representing the state and the political parties in the country. This critical mass can also be termed as civil society. Upadhyay (2015) argued that public opinion, civic society, ideologies and social tendencies outside the formal institutions of political power remain decisive in post republican state structuring in Nepal.

Nepal has experienced several issue based movements. Panta and Baral (2019) observed that only in the year 2019, Nepal witnessed several social movements, with people taking to the street and on social media to make their voices heard including the Guthi Movement or the protest against the Guthi Bill, the movement of Freedom of Expression, the Pride Parade, movement for Occupy Tundikhel, movement for Medical Education and the Kalapani Discord and so on. But quite differently, with his primary demands for reforms in Nepal's health and education sectors, starting with his first satyagrah on 5 July 2012, Dr. Govinda KC had twenty sit-ins and hunger strikes in the last ten years. Govinda KC's movement was based on democratic accountability and governance transparency. Maskarinec et al. (2020) studied the non-violent social movement in Nepal initiated by the senior physician in the country, which turned into a nationwide movement with support of people of different age groups where the civil society members and youths voiced against the government to reform, systemize and improve medical education in the country. This group of authors argued if the nation's trend towards for-profit medical education was compatible with rule of law in the country or there was a risk for Nepal being a failure in addressing the nation's health needs. The right to quality health service and basic health service is a fundamental right constitutionally and full respect of these rights was the demand of the movement under the poster of Govinda KC nationwide. However, as Santillan (2020) observed,

public health care of ‘developing countries’ is inferior in quality and services, and Nepal is not an exception.

KC’s issue-driven social movement primarily focused on the government’s dealings with the medical education and delivery of public health service in Nepal. KC, an orthopedic surgeon in Nepal government owned teaching hospital for 26 years until he took his retirement due to age restriction in 2019, with the demand for ensuring ‘free medical education and health care for all’, in his Gandhi-style satyagraha (Yadav, 2023) started in 2012 continued as a social reform movement and earned millions of sympathizers by September 2020 when he sat for his twentieth hunger strike.

In the above context, the present paper with a focus on KC’s protest in 2012-22, examines how the governments, during that period responded, to the movement and whether and how those responses reflected accountability. This paper primarily focuses on two critical questions related to accountability and transparency in democratic governance systems i) what is the importance of accountability and transparency as key elements of democratic governance and ii) how was the issue based movement of KC addressed by the government. This paper explores the extent of transparency maintained by the government in addressing the larger voice of the people on the selected issue based social movements in the country. This is further to look into the gap between the demand and service delivery by the government in health education and health service nationwide under the poster of KC’s initiation. Thus, the main object of this paper is to know the social reality behind the selected issue based social movements in Nepal. This is to answer a question why such reality exists and how they are addressed by the stakeholders.

Methods and Procedures

This paper followed a research design with qualitative description, analysis and interpretation based on both primary and secondary sources of information. Using mainly a desk study and archival study method at the national level, the secondary sources of data such as media monitoring including the social media and the news media; electronic, print and online, were widely used. The relevant policy reports, information disseminated on the internet in formats other than in academic publications were equally used for picking up the necessary information. Thus the author determined the research methodology including its direction and methods, and the research tools after reviewing the matrix of selected articles which were of identical nature to the present study. Further, the research objectives and research questions helped the author to develop the research method specially to determine the research tools and the interview questions and checklist. The primary information was collected from respondents selected using a snowball sampling method and through KII (Key

Informant Interview) with the lead campaigners of Dr. Govinda KC's movement in Kathmandu and in Biratnagar. Similarly, KC's associates, including the coordinator of 'Solidarity with Dr. KC', who were representing him during the series of dialogues with the government, were interviewed using open ended questions, checklists and interview schedules. Besides, some of the civil society members, in Kathmandu and Biratnagar, who were among the organizers of the campaign "*I am with Dr. KC / Solidarity with Dr. KC*" and demanded the government to listen to them while they supported Dr. Govinda KC. Selected independent respondents from the medical fraternity were also interviewed for their responses on Nepal government's accountability towards any agreement made to address and reform the sensitive issues like health and medical education. This was to understand the larger perspective on the issue based movement of Dr. Govinda KC and the government's address to the movement with reference to the agreements signed with him and implemented by different governments since 2012. The narratives of the discerned respondents and critics, who were aware about the movement, were also collected for a critical review. The narratives of the respondents were also collected through e-contacts and with due ethical considerations.

Results and Discussion

As stated earlier, this qualitative research uses the lenses of democratic governance, transparency and accountability. In global and regional perspectives, accountability and transparency are understood with different perceptions, and are determined through different indicators. Civil society movements and volunteer contribution to such movements also urge for good governance, and democratic transparency and accountability. Volunteerism is a marker of any 'free society' and the very foundation of citizenship (Aditya, 2011, p.6). Dr. Govinda KC, as a responsible Nepali citizen, besides being a senior orthopedic surgeon in the country, voluntarily turned into a medical reform campaigner in 2012 in Nepal. South Asia Check, an organization that claims to prompt accuracy and accountability in public debate, published a story on KC's campaign and with his agenda on 10 August 2020, that by the time Dr. KC declared his 19th hunger strike, who demanded a larger reform in public healthcare and medical education in his country, was also calling for a free and impartial probe into the major corruption allegation against the existing government. However, the indifference of the government promoted public solidarity for Dr. KC alliance where a loose grouping of activists with medical students and public took to the street (Ghimire, 2020a). Neupane (2020) argued that the 'modest demands' which Dr. KC set forward throughout his 19 times of hunger strikes; 10 times to the government led by the communist party(s) and 7 times to Nepali congress government and 2 times to the government under Khilaraj Regmi, of more than 227 days in 8 year's time from 2012 to 2020, and with six different governments ruling the country had

either ignored, were reluctant or were slow at their best to implement those demands which most of these governments agreed to execute by signing different agreements with Dr. KC in their efforts every time to end his hunger strikes.

KC's peaceful movement could draw the attention and engagement of a large community irrespective of their social affiliations in the country. Number of the young social activists in Kathmandu, most of whom were the attaché of Dr. KC, replied to this author next to the research interview questions that the government's response and accountability towards most of the agreements made, regarding health and education was pathetic. Series of protests and campaigns were launched to get the government to fulfill the bare minimum and even after reaching an agreement, the consistency slowly vanished. Citing KC's movement as an instance to represent issue-driven movements in the country, the interviewees argued that agreements were made and signed by the government but Dr. KC had to come to the road time and again because they were barely met. The government(s) did not show accountability and the sensitive issues got marginalized. The governments in the eight years' time were often criticized for their insensitivity as they risked the life of the agitating doctor. Ghimire (2020) observed that the administration had adopted a "nonchalant attitude" towards Dr. KC's demands and was disdained from him till 21 days of the 19th hunger strike of the 63 years old medical doctor.

Transparency International, on 4 August 2017, had a press release with a call to the government of Nepal to approve education reforms and to bring into an end of the integrity award winner's hunger strikes as that the goal of Dr. KC to ensure that medical education in Nepal was free from nepotism and cronyism, and to assure that medical professionals achieved the highest standards in a context when some institutions were accepting fee and payments to circumvent sub-standards student marks. On the other hand, such indifference of the government towards the demands of the 'social crusader', promoted the *Solidarity for Dr KC Alliance* formed impulsively as a loose grouping of activists including medical students and the general public that took into the street and dozens of people gathered in support of the at the places of his hunger strike (Ghimire, 2020a). Civil society institutions promote the value of transparency and accountability in a democratic state and support development (Panday, 2020). Panday further explained that at a 'macro level' civil society institutions are often focused on their advocacy and watchdog roles to improve the performance of the state institution and the market (pp. 120-21).

The key respondents interviewed for this research were found lively while explaining the importance of accountability and transparency as key elements of democratic governance in any part of the world. They argued that accountability and transparency should be at the heart of democratic governance. For the respondents, the whole democratic setup with checks and balances was meant to ensure governance

transparency and accountability. A young medical doctor was of the opinion, “worldwide, there is a direct correlation between these two attributes of accountability and transparency and the vibrancy of democracy as a system. In the same vein, countries like Nepal with poor accountability and very limited transparency are beset by a political system that tends to limit the democratic system to periodic elections”. The grievances expressed by the respondents were, “as patronage, nepotism and favoritism thrive, people start questioning the very democratic system for the failure of actors within it”. This category of respondents believed that the government bodes ill for the societal as well as economic wellbeing when sectors like education and health are also mired in “unaccountable and opaque governance”; the futures of entire generations of people are ruined.

Nepali (2020) observed that in the 19th indefinite hunger strike Dr. KC put such demands which no one could declare ill-intentional, irrational and impossible to implement and those included de-mafia-ise and democratization of medical education for at least middle class people, the commencement of academic sessions at Geta Medical College, Kailali, Dhangadi, and at Rapti Academy of Health Sciences, Dang, initiate the establishment of government medical college and hospitals at Doti, Dadeldhura, Udaypur, Illam and Panchathar district. Nepali further mentioned that Dr. KC’s asked for the amendment of the existing Medical Education Act as per his previous agreement with the government and to make appointments at Tribhuvan University Teaching Hospital on seniority basis. However, a considerable number of the key respondents from the medical fraternity were found keeping critical perspectives while rationalizing Dr. KC’s eight years long movement from 2012-2020. The respondents highlighted Dr. KC’s demands in three categories namely - the rightful demands, the demands needing experts’ opinion or adequate homework to be agreed, and the implemented, and impractical demands.

Following the researcher’s question on how the issue based movement of KC was addressed by the government, the primary respondents including an aide of the agitating doctor, replied, more or less in the same tune, that the perennial attitude of various governments in Nepal to Dr KC’s movement had been to avoid doing anything until the public pressure was unbearable. Once the latter happened, they signed a document and then avoided implementing them as much as possible. That was because implementing those agreements would hurt the cronies of politicians in some way or the other; sometimes massively so with income of some medical colleges nearly halving after implementation of the Mathema report that brought down the education fees and fixed number of seats for MBBS studies.

Adding to what agreement was made and how the government showed its accountability in their implementation, though it was relatively a vague subject, the

respondents realized that some other agreements had also been implemented. In a telephone interview with this author in Jan 2020, a medical doctor working in the private sector in Kathmandu realized that the responses from the different governments were not sincere. They were rather forced due to the circumstances, and they mostly, directly or indirectly, worked to make the agreements signed with Dr KC null or ineffective.

The arguments of the respondents that explained about partial responses on the government side to KC's demands also included that, without any doubt, merit-based admission had become norms even for the private colleges. The easy mushrooming of medical colleges had gone to a halt. The powerful people like the former CIAA (Commission for Investigation of Abuse of Authority) chief and former Chief Justice had been held accountable, nevertheless much of the institutional reforms like ending political interference in public bodies were to be made till date. Majority of the respondents among KC's associates argued that the major agreements related to the medical field made by the government with Dr. KC included establishing one medical college in each province and providing no more affiliation to new medical colleges for at least ten years in Kathmandu valley to guarantee quality in medical education. Extension of medical education and hospital services in remote areas and the formation of Medical Education Commission (*Nep.Chikitsa ShikshaAayog*) to control the seat limits, affiliation and all the processes in the existing medical colleges in the country. One university was meant to provide affiliation to no more than only five medical colleges. Increase in the number of government medical colleges and hospitals and the number of seats with determination of fee for medical education. No extra charges for medical education were to be claimed. No political appointment in the universities, health institute and medical offices. Seniority and working capacity were to be given priority until and unless the effective law was made to control these posts.

The respondents argued that even after having an agreement, the government didn't show any positive way in implementing the agreement due to which Dr. KC had to be on hunger strike from time to time. Dr. KC had forwarded demands and started a hunger strike in 2012. He had almost placed the demands to all the government after that till 2019. This category of research respondents further stressed that the trend of the governments was that they just agreed to fulfill the demand when KC's hunger strikes were marked for more than 20 days. Still they used to make bargaining demands during the time of negotiation. Due to KC's protests and campaigns from time to time, the government becomes bound to fulfill the demand. The main achievement from the hunger strike was the formation of the Medical Education Commission as per the provision of National Medical Education Act 2019. This medical education bill had not become a priority to any government. But with the continuous pressure of Dr. KC's

hunger strike, the government passes it from the parliament. This law had been first released as an ordinance. The successive government played a negative role and even removed several points from the Act. However, due to KC's next hunger strike, the then government agreed to pass the bill as provisioned in the ordinance issues earlier. This was not expected by Dr. KC that even after having an agreement, some of the points would be changed.

The key respondents from the medical fraternity who preferred to introduce themselves as '*independent reviewers on Dr. KC's movement*' were of the opinion that initially KC's series of satyagrah could draw the attention of the public and the government in the country. Dr. KC had wider integrity supporters in the country and abroad as well. This was possible because he was selfless to start the movement with a prediction of larger social impact. The specific issues like determination of medical education fee, opening of medical colleges beyond the set standards, provision for a centralized entrance system for selection of medical students in the country were significant for the health sector reform in the country. To quote Subedi (2020:110), there came some '*silver lines in the dark clouds*' due to Dr. Govinda KC's repeated satyagrah, peaceful pressure from the civil society, and with the support of the media. Some important milestone achievements after KC's satyagrah were the Rashtriya Chikishya Ain (National Health Act) 2019, establishment of Medical Education Council, provision of government scholarship up to 75% in public medical education and so on (Subedi, 2020).

However, some sort of 'agenda deviation' was noticed in the long struggle to create democratic pressure on the existing governments. Irrespective of his ideological faith, the demands to pull back the CIAA chief, the then chief justice and so on were viewed as political agenda and were against the establishment. The demand of impeachment against the then chief of CIAA, the issue of transitional justice, resignation of the then chief justice of the Supreme Court, demand for probing corruption cases against incumbent and former commissioners of CIAA into their properties were of political nature (Ghimire, 2020). The larger public opinion was divided on the ground that KC's agenda got '*political colour*'. At some points, the decent campaigner expressed his anxiety through his words and actions, and he was observed as being in a hurry. In practice, issues needed a considerable time frame to change with due process.

The independent observers of the movement further commented that Dr. KC might have developed the psychology that any issue raised by him could draw larger attention and would be addressed by the state apparatus. Nevertheless, irrespective of one's individual ideology, every national citizen keeps the rights in questioning governance accountability and can appeal to public sentiments to gain support for any peaceful movement and campaign.

As Lyrio et al. (2018) argued there is a need for greater participation of citizens in controlling the public actors' action that helps to strengthen public sector governance. Despite being medical personnel, Dr. KC was a privileged citizen to question any government decision that had or could limit public interest or go against the welfare of the common people. But the social issues sometimes overlapped with the political and legal issues and the governments' response to the latter category created further complexities. The legal and political issues often needed different advocacy in a greater forum and even demanded legal amendments or formation of new laws. A respondent even provided a blunt calculation that around twenty-five percent of Dr. KC's demands were political in nature.

Critically reviewing Dr. KC's movement and government's response to the movement in terms democratic accountability and transparency, the respondents from the medical fraternity, every movement shall have its scope and limitations which was not realised at some points when Dr. KC decided to continue his satyagrah with additional demands in a series. No doubt, any social movement creates public awareness on specific issue(s) and KC was successful in generating public opinion and creating mass awareness on the several aspects of medical education in the country. People realised that there were mal-practices in medical education in Nepal and many suffered from such irregularities. Medical education was ultra-commercialized (Nepali, 2020) in *constitutionally socialism oriented* and *politically socialism propagated* in Nepal.

The term 'medical mafia'-a term used by Dr. KC (Gautam 2016) and popularized through his movement, came to the forefront of public discourse in the country. Similarly, the movement succeeded in sacking a few individuals from their positions. However, the need was to establish a reformed system in the specific area in question. For instance, the Mathema Commission was formed and a report came. Nevertheless, there were efforts to derail the commission's recommendations.

A Higher Education Commission (HEC) was formed as per the Mathema Commission Report but some individuals recruited for the HEC had not been above criticism. 'It was to welcome that the fee for medical education had been determined but there in spite of irregularities and favouritism in the selection process and this will ultimately discourage the meritorious and bright students who will ultimately fly abroad for higher education and spend a lot' the respondent pointed out. There was an appeal from the respondents that the country realizes the change but revolution for each and every change could never be expected. "Change shall come through evolution for its sustainability" the respondent commented.

One important ground on which Dr. KC's social movement received criticism as his emphasis demanded that all his proposals should be addressed in the same

form as he put the demands. For instance, his agenda of recruitment of the medical Deans on the basis of seniority occupied much space of the movement. However those so called seniors could not exhibit any remarkable change as expected. Seniority does not necessarily mean leadership quality and administrative skills. 'To conclude, one should be aware of the scope of every movement' my respondent suggested the limitations of social movement.

Undoubtedly, as Mathema (2007) argued, higher investment of the government in higher education promotes nation-building through increased social cohesion, democratic participation, appreciation of socio-economic diversity, and thereby increases the trust in social institutions. Even the primary respondents from the medical fraternity employed in private sector health care service also commented that Dr. KC's movement highlighted the issue of mismanagement of medical education, lost opportunities, waste of resources, extractive and unjust practices of private medical colleges regarding fees, the overall corrupt influences those practices were having in the education of some doctors and healthcare workers, and in healthcare service delivery in the country. However, often the demands were overambitious, too rigid and sometimes not the right demands to ask for, even though no one can question his integrity or intentions (KII, Jan 2021).

A respondents from a public health service even preferred to highlighted all the agendas into 3 categories as i) *Green demands*- the valid, relevant and well justified agendas, ii) *Yellow demands* – the justified but needs proper homework, decided by group of unbiased committee/members who are expert in the field and policy making, and iii) the *Red demands*- somehow irrelevant demands with a justification that those were deviated from the interest of medical field, which might be the cause decision makers distracted fulfilling even implementable demands(KII Jan 2021). This respondent meant to say that, as an independent, conscious citizen of the nation, those red marked demands were not completely invalid/could be raised but they defocused other genuine agendas. There were scores of other such agendas which needed adequate efforts from all sectors.

Respondents more or less agreed that the willpower, commitment and the foresightedness of the political leaders and the bureaucrats as well, and of the conscious /educated citizens from individual, family, community level were always important in democracy. As we all tend to talk about big issues, hypothetically but do not implement ourselves even which are possible. Such matters, culture and habits take time to change but having said that it should be initiated by someone/us all at our level. The justification that the research respondents had was during first and second satyagraha, KC's demand to sack responsible executives should have the process.

First, one should understand how they got appointed. Those who appointed them and the motive of their appointment would also be equally important and should be accountable. Regarding third the satyagraha, the demands such as for taking action to unqualified and corrupt executives appointment, straight off cancellation or sacking or taking action might sound a bit blunt. Rather an independent experts' committee could be formed based on its reliability, and as decided.

Regarding the issue of giving affiliation to other colleges, rather than canceling straight off or not giving to anyone, feasibility/requirement in terms of health services and adequacy of faculty and infrastructures etc. should be worked up. The institutes which probably had been running hospital services even before KC's first satyagraha started with permission and it was unjustified to speak against them by an individual citizen. Though, agendas in the fifth satyagraha were generic, not specific, the subsequent satyagrah agendas, though almost all his agendas were valid. However at times the timing of satyagraha looked like favoring some political parties or political influences as well. Many times his demands looked, understandably, authoritative rather than showing ways to resolve the problem or addressing his demands/agendas. Every problem, generally, has a solution but it should be done in a proper/evidence based way. Blaming someone could have been often easy.

Another point, Dr. KC was unilaterally demanding to sack some executives in the university whom he interpreted as corrupt and unqualified. Importantly, in his initial agendas, he used to demand that some qualified and seniors be appointed in executives without political influence/divisions but in later satyagrahas, he asked only to be appointed as seniority basis. Seniority basis may not always work! Seniors may not always be interested or qualified, two of my respondents from the medical fraternity replied.

Civil society, both as organized and unorganized citizens acting independently from the government, any political ideology or profit motive and also beyond any religious or professional organizations, labour unions, grassroots organizations, or NGOs, can include the participation of citizens (World Bank, 2004). A functioning civil society is considered a necessary component of liberal democracy (Panday, 2020). Civil society initiatives explained as 'new social movements' are in quite different forms and with different interests than the 'classical social class governments' that carry radical democratic aspirations (Kabiraj & Khilnani, 2001, p.2). For Panday (2020), citizens become powerful agents in their own rights and have wider influence when they learn to organise effectively, form associations, build opinions on issues to influence community groups, professions, the academia, the media and so on.

Chhetri (2017) elaborated a few instances to explain that the then CIAA's leadership stood against the principle of Rule of Law negatively influencing the medical education system in the country. Chhetri further argued that this was also against the spirit of the agreement signed by the government on 24 Jan 2014 to end KC's third satyagraha. Any bonafide citizen as a civil society member has every right to protest against government office bearers for any misconduct. However, primary respondents (KII, Jan 2021) argued that regarding taking action/asking to sack CIAA Chief, Chief Justice, Oil Corporation Chief, culprit of Nirmala Pant murder case etc. though valid, there should be some process for this. If every individual stayed fast unto death with such agendas and wanted to be authoritative and asked whatever one said should be done immediately, the democratic system might be in challenge.

The critics, during the telephone interviews, expressed that Dr. KC's demand for free education in master's programs in all private medical institutions was not applicable. In such conditions, how would the private institutions sustain? Some other reactions were that Dr. KC's agendas also included Maoist insurgency related justice issues, and employment/ education and road access issues to Darchula (many districts are in need of roads there), Baluwatar land issues, wide-body air-craft procurement scandal, security press issue, Rajya Laxmi Golcha bribery issue and immediate return of the Indian encroached territory of Nepal. There are thousands of such issues which are not going to be resolved overnight though we all wish the process would begin soon.

Dixit (2003) commented on mushrooming of medical education in post 1990 Nepal with establishment of ten medical colleges in ten years' time in the length and breadth of the country but, sadly, without any such school/college in the far west. There are twelve medical colleges from the public and private sectors in the country and some others are waiting for their operation, but the distribution of medical colleges is not balanced and lacks decentralization (Subedi, 2020). The civil society in Biratnagar was found supportive of Dr. KC's movement and voiced for social justice. A former president of a 'leading group of intellectuals' in the city that showed public integrity to KC's satyagraha expressed that decentralization in medical education, and appointment in the higher bodies of medical education and institutions should always be based on seniority and competence. 'Seniority does not necessarily mean someone with white hair', further defining the term, 'seniority', the respondent said. 'Equal access to health and education for all and freeing the health sector from the hold of the rich were the two demands of Dr. KC and he was able to advocate these issues' a supporter of the movement justified. Additional provisions for government scholarship quotas for the deserving students from the low economic status families would obviously enlarge the medical education access.

On the government's response to KC's satyagraha, these civilians were of the opinion that the then governments were compelled to meet in some agreements just to save his life and found less-accountable through their implementation and agreements are only partially implemented. A respondent from the civil society specified that merit based selection of students and centralized entrance examination for the selection is done by the National Medical Commission.

Responding to researcher's follow-up questions, the civil society members expressed consensus that KC's social movement was relevant to the extent it was associated with issues of health service and medical education, though civil society movements have limitations in the country and have been under criticism since 1990 for possessing some sort of political biases though Dr. Govind KC, as an individual, could be recognized for his non-political identity. And to this extent, his demands for administrative reforms received wider support from the civil society. One more aspect lacking in the process, as the respondents in the civil society pointed out was that there is inadequate regulation and monitoring for the assurance in imparting quality and competitive education in the country. Irregularities in medical studies are noticed to some extent and reforms are sought, although quality control is required even from the school level especially in grade twelve that supplies students for medical education. The risk will be much higher if there is lack of enough regulatory provision and monitoring from the concerned authority in public and private education in the country.

The research interviews supported that accountability and transparency shall come with the plans and visions of education with a practical assurance of their implementation. "There shall be a state projection of the state on sustainable provision of human resources. There shall be vision and action on balancing quality and quantity" a respondent suggested the state authority. As a campaigner, Dr. KC should enjoy the right to question any contemporary issue. To ask questions on governance is a basic right of any citizen. The respondent further stressed that whatever rumors came against Dr. KC were propagated by the private medical sector. Of course, there was a weakness on the government's side that even after approving the Letters of Intention (LoI), some proposed medical colleges in the private sector were not provided permission to operate. The government should have not issued the LoIs if they could not qualify. For any investment from the private sector, as per the government regulation, the aggrieved party(s) shall be compensated.

Civil society, as an important precondition with its "independent eyes" for the existence of democracy, finds the means to check on the state power and hold the state accountable (Chandhoke, 1995:108). Besides the educated elites, students, civil society, political leaders, the solidarity of the youth gave height to Dr. Govinda KC's social movement (Chhetry, 2019). The youth volunteerism and mobilization of youths in the movement were high through social media campaigns (Kafle & Karki, 2020).

This researcher studied the activities of a Civil Society Organization (CSO) of the youths working for governance accountability and transparency that supported Dr. KC's movement from Biratnagar. In an interview in Jan 2021, the leader of the CSO responded that as it is the role of the Government to be accountable towards its citizens because they are there to serve the interest of the taxpayers not only to serve their vested interest or the interest of their cronies. The respondents, more or less, believed that the private and public sectors both should have an opportunity to provide its service in health sectors. But people could see a lot of mismanagement and malpractices in both sectors. Most government health institutions were reported to lose their credibility due to the uncontrolled corruption. For the research respondents, the issue raised by Dr. KC on government accountability to the health sector was highly appreciable. Each time Dr. KC raised the issues; the government made an agreement due to public pressure, but did not take it seriously. This forced Dr. KC to go for the hunger strike several times, which showed the lack of government accountability and commitment.

Conclusion

Issue-based social movements significantly draw social and political response. In fact, the question of how relevant any social movement in Nepal is and what determines the public integrity and government responses towards such movements was found important. Dr. KC had wide support from civil society. Whereas the different Governments, from 2012 to 2022, neither wanted to accept KC's satyagraha in time nor could they deny his demands. The data analysis showed that, at times, there were political attempts to detract Dr. KC's satyagrah and undermine the social justice cause. The social activists, interviewed for this research, unanimously appraised that the government's response to KC's movement was insufficient. They said that they were disheartened by the fact that Dr. Govinda KC had to protest repeatedly despite being clear regarding his stances. The violation of state policy by the state itself, having minimal to zero concern for its citizens, the existing wide medical scam, and the government's blind eye turns to those issues, showed that either the state did not feel obligated to have concerns about the issues raised. Nepali (2020) argued that a person like Dr. Govinda KC who could have risked his own life for public cause instinctively without seeking promotion of his personal cause and, thus, his movement should have never been declared irrational by the state authority or any community as his demands were pragmatically possible to be addressed within a short timeframe.

The pursuit for an affordable and well-governed medical education and to push the government, its subordinate organizations, and the political parties for social justice in health and education could be questioned by no means. However, as Nepali argued further, the government appeared to have adopted a tactic to let the social activists

wane mentally and physically to get rid of him instead of timely addressing his rational demands. The leading political parties in the government could formalize their political commitments if they had been honest in their democratic faith (Nepali, 2020).

It was equally realized, from this study, that contemporary issues can draw attention in the present day political climate with people of higher level socio-political information and consciousness. There are several issues to be addressed, through social movements and led by civil society in Nepal rather than being projectized by any non-governmental agencies. Transparency and accountability in health service and education do largely fall in this category.

There were some concluding observations that Dr. Govinda KC's campaigning, as an issue based movement, was of significance against the nonstandard notions and practices within democratic governance in Nepal's socialism oriented welfare state apparatus. Wide public integrity in support of the movement, signing of agreements by the government with the activists, and realization of positive changes by the common people due to such movements helped re-establish their relevance in democracy.

However, there were interpretations on shortcomings of KC and his movement. His language and communication skills could not be ruled out, he was at times impulsive and his rigid method of indefinite fasting was a violence and torture against himself (Nepali, 2020). At times Dr. KC's movement was polarised and he had both supporters and detractors (Gautam, 2016). A few primary responses revealed that Dr. KC's movement was not always limited in demanding common people's access to affordable medical education and access to public health services but there were other aspects, like the demand for removal of an individual from one's public position through fast or public protest, which he took into account as were supposed to be against the core principles of democratic governance. Finally, this study creates a scope to advance further scholarly discourse on such issue-based and justice-driven social movements in the country.

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Exploring the Risks and Benefits of Internet and Technological Devices for Children

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Abstract

This study aimed to investigate the positive and negative impacts of internet and technological devices on children aged 5-16 years in Birendranagar-6, Ganesh-Chowk, Surkhet. A sample of 60 children from 20 households was included in the study, with 13 children aged 5-8 years, 24 aged 9-12 years, and 23 aged 13-16 years. Data was collected through interviews and analyzed using descriptive statistics. Results showed that 25% of the respondents had received information about internet and technological devices from radio/TV, while 40% had received information from friends, 15% from neighbors, and 20% from agents. The study revealed that children aged 5-8 years were not at high risk of internet and technological devices, but the risk increased for children aged 9-12 years. The study also found that children engaged in a range of online activities, including school work (85%), playing games (83%), watching video clips (76%), and instant messaging (62%). Fewer children posted images (39%) or messages for others to share (31%), used a webcam (31%), file-sharing sites (16%), or blogged (11%). Furthermore, the study found that internet and technological devices had negative impacts on children's mental and physical health, as well as making them more aggressive and unsocial regarding potential risks associated with internet and technological devices and promoting safe and responsible

Keywords: Impacts, technologies devices, social media, internet, aggressive and unsocial

Introduction

The use of internet and technological devices among children has become increasingly common in recent years, with access to such devices becoming more accessible and affordable. While these technologies provide various benefits, they also come with potential risks, particularly for children.

This study highlights the need for parents and educators to educate children about the potential risks associated with internet and technological devices and promote safe and responsible use. Moreover, policymakers need to establish guidelines and regulations to ensure the protection of children while using the internet and technological devices. The findings of this study contribute to the growing body of literature on the impact of internet and technological devices on children, particularly in a Nepalese context.

The United Nations Children's Fund (UNICEF) defines a child as an individual below the age of 18 years, unless they have attained majority earlier under applicable laws. Technology has become an integral part of children's lives, offering various opportunities for more interactive learning and aiding their progress in subjects that are traditionally difficult to engage with, such as math and physics. However, there is also a downside to technology, as it can act as a digital babysitter and temporarily occupy children. Despite the challenges of parenting, relying on smart devices to pacify children may not be the best approach, as it can lead to children prioritizing technology over other meaningful activities and developing an unhealthy attachment to it. The concern is that children may seek comfort in technology rather than in their relationships and self-confidence, leading to similar attachment issues as with food. The study focuses on the impact of internet and technological devices on children aged 5 to 16 years, who are important future resources for the nation's development. It also emphasizes the relationship between parents and children, highlighting the need for parents to spend quality time with their children and promote social and dynamic behavior through technology. The high percentage of internet users in Nepal further emphasizes the relevance of the study. Despite the complexity of the issue, it is vital for parents and policymakers to understand the potential risks associated with children's use of technology and promote responsible use.

The drawbacks of internet and technologies devices use on children have received attention in recent years. In academia, journalism, and other popular forms of media, there has been a growing concern for the ways that children have increased access to smartphone technology.

Some scholars have even turned toward the adverse bodily effects that technological devices can have on children. A recent article published in the journal *Child Development* explored the physical health consequences of technological devices use for children. It stated that, as more children begin using smartphones at earlier ages, "it is of importance that neurological diseases, physiological addiction, cognition, sleeps and behavioral problems are considered." Because of this, parents and clinicians should be aware of the repercussions of early-age smartphone usage.

A root cause of the negative effects of smartphones on child development can come from an unexpected place. An article in the Atlantic stated that, before parents should be concerned about their children's smartphone usage, they should first consider their own. As the ultimate examples of their children, parents need to be mindful of their smartphone consumption since that kind of behavior will set the stage for how children will interact with technology. Parents must consider what image they express to their children and how they communicate responsible smartphone consumption.

The objectives of this study is to find out the positive/negative impacts to children via such modern technological devices and internet, and also bring out the remedial measures to the problems of it, so that children can be made social well-being for they are upcoming human resources of the nation.

Literature Review

The present research aims to analyze the impacts of technological devices and internet to children and for this purpose, a review of related literatures in this concerned area is must, which will help to get clear ideas, opinions and other concepts. This section emphasizes about the literatures that were concerned in this connections.

Children

The effect of technology on children's life is one issue that has received a lot of research. In a study on the effects of mobile devices on young children's development, Kabali et al. (2015) discovered that young children's excessive exposure to mobile devices might impede the development of their speech and language. Twenge and Campbell (2019) identified a link between increasing screen time and adolescent sadness, anxiety, and suicidality in another study that examined the effects of digital media on adolescent mental health.

The protection and rights of children also have gained a lot of attention in recent literature. Hanlon and colleagues' (2018) highlighted the impact of child marriage on girls' education in Nepal and called for stronger policy measures to protect girls from this practice. Similarly, a study by Bhatta and Pandey (2019) examined the role of parental support and community interventions in reducing child labor in Nepal.

In terms of the definition of a child, the UN Convention on the Rights of the Child provides a widely accepted definition, which is in line with UNICEF's definition. The Convention defines a child as any person under the age of 18, unless the age of majority is attained earlier under a state's applicable law (UNICEF, 2020). The Nepal Citizenship Act (1963) also considers a person below 16 years as a child, indicating that different legal systems have varying definitions of childhood.

Technological Devices

Technological device means any computer, cellular phone, smartphone, digital camera, video camera, audio recording device, or other electronic device that can be used for creating, storing, or transmitting information in the form of electronic data (lawinsider.com, dictionary)

Internet

The Internet (or internet) is the global system of interconnected computer networks that uses the Internet protocol suite (TCP/IP) to communicate between networks and devices. It is a network of networks that consists of private, public, academic, business, and government networks of local to global scope, linked by a broad array of electronic, wireless, and optical networking technologies. The Internet carries a vast range of information resources and services, such as the inter-linked hypertext documents and applications of the World Wide Web (WWW), electronic mail, telephony, and file sharing. (Wikipedia)

Internet in Nepal

Although in 2011 only about 9.0% of Nepal's population used the Internet, use of the Internet in Nepal is growing rapidly. As of July 2022, 90.56% of the population has access to the Internet according to Nepal Telecommunications Authority (NTA).

Internet penetration stands at 90.56% of the population and that of fixed broadband internet service providers stands at 25% of the population, a significant increase from 2018, when total internet penetration was 56% of the population and fixed broadband users stood at 12% of the population, according to the Nepal Telecommunications Authority.

Legal and Regulatory Frameworks of Internet in Nepal

Nepal's legal system is in flux because of its unstable political landscape and its new constitution. The most recent collapse occurred in February 2005, when the king assumed control of the government and armed forces. Civilian protests followed, and he was forced to reinstate parliament and ultimately relinquish all official powers to the prime minister and parliament. The king sought to stifle the independent media during his tenure, passing the repressive Media Law, which prohibited criticism of the king and royal family and the broadcast of news over independent FM radio stations (an important source of independent news in the country). The Media Law also increased the penalties for defamation tenfold. The law was repealed once parliament was reinstated.

In December 2006, seven political parties and the Maoists agreed on a new interim constitution that paves the way for the Maoists to join the political mainstream and nationalizes royal properties, leaving the fate of the monarchy up to a general

election. The interim constitution guarantees certain social freedoms including freedom of speech and expression, freedom to protest, and freedom to establish a political party, among others. The constitution also guarantees the freedom to publish, including a specifically enumerated freedom to publish on the Internet. It advises, however, that those who publish information that causes social disruption or disparages others may be subject to punishment under relevant laws.

One such law is likely the Electronic Transaction and Digital Signature Act of 2004 (ETDSA), which regulates online commerce and financial transactions and criminalizes certain online behavior, including hacking and fraud. ETDSA also provides criminal penalties, including fines and up to five years in prison, for the publication of “illegal” content on the Internet (though it provides no definition of illegal content), or for the publication of hate speech or speech likely to trigger ethnic strife. Similarly, the National Broadcasting Act of 1993 (NBC) and the National Broadcasting Regulation of 1995 provide for fines and/or imprisonment for broadcasting content likely to cause ethnic strife or social unrest, undermine national security or moral decency, or conflict with Nepali foreign policy.

However, the extent to which any previously existing laws will retain their force under the new government is unclear.https://en.wikipedia.org/wiki/Internet_in_Nepal - cite_note-oni-1 The Government of Nepal has banned pornographic sites from September 21, 2018.

Most Used Technological Devices in Nepal

There is limited research available on the most used technological devices in Nepal. However, a study conducted by the Nepal Telecommunications Authority (NTA) in 2019 reported that mobile phones are the most widely used technological device in Nepal (NTA, 2019). The study found that 65.4% of Nepalese households owned a mobile phone, and 93.9% of mobile phone users used smartphones. Additionally, the study reported that 36.5% of Nepalese households owned a television, and 17.3% of households owned a computer or laptop.

Another study by Basnet et al. (2021) examined the use of smartphones among Nepalese university students. The study found that 97.5% of the participants owned a smartphone, and the most common activities conducted on smartphones were browsing the internet (93.5%), using social media (91.5%), and listening to music (84.3%). The study also found that smartphones were used for academic purposes, such as accessing educational apps (73.7%) and using the smartphone for online classes (69.2%).

Furthermore, a study by the Kantipur Media Group (2018) reported that Facebook was the most commonly used social media platform in Nepal, with 87% of internet users having a Facebook account. The study also found that 58% of Nepalese internet users accessed the internet through a mobile phone, while only 28% used a computer or laptop.

Overall, the research suggests that mobile phones, particularly smartphones, are the most widely used technological devices in Nepal. Additionally, social media platforms such as Facebook are also commonly used among Nepalese internet users.

Mobile (Smartphone)

Mobile is a very important gadget for the people of Nepal. People usually use mobile to communicate with each other, but nowadays mobile are being used to do other various activities such as social networking, playing games, messaging, capturing photos and much more. Mobile is one of the famous gadgets that all the people of Nepal use for their personal use. Mobile can also be used as a luxury device.

Tablet

Tablet is known as a thin, flat mobile computer with a touchscreen display that consists of processor, rechargeable battery etc. Tablets are usually larger than smartphones. According to the survey, Tablets are mostly used by students, business people and also for entertainment purpose. Tablets can also be used instead of laptops because tablets are more easy to carry and also have more battery life than laptops.

VR Headset

VR Headset gives virtual reality to the individual who is wearing the headset. VR Headset is a computer technology that uses a virtual reality by generating realistic images, sound, and other sensations. This gadget creates a real environment or imaginary setting and is widely used in computer games, simulators and trainers and other applications by the people of Nepal.

Smart Watch

Smart watch is a computerized wristwatch that can perform the various basic task. Smart watch can also run mobile apps using a mobile operating system. People of Nepal use the smart watch to do most of the work done in mobiles, use application, any many other activities as well as to receive and dial the call from the wrist of their hand without using the mobile.

Laptops

The specialty in laptop computers include light weight and lower energy consumption. Also they are less noisy and easy to handle. Similar to desktop computers the laptop computers include mother board, processor, hard disk, memory, graphic card, keyboard, mouse and display device. So Nepalese are fond of laptops and they are ignoring to buy desktop computers.

Most Used Social Media in Nepal

Facebook

In Nepal, Facebook is the most used platform. It connects people around the world, with 2.23 billion monthly active users. It is a simple platform for chatting, sharing media, creating groups, and making new friends.

Instagram

Instagram is one of the youngest social networks with a majority of users under 25 years of age. This makes Instagram the perfect social network for brands or companies that target young and modern population groups. Photos and short videos with little text are great for Instagram. They also integrate with your Facebook and Twitter accounts, so you can share the same photos on all platforms. Instagram is widely used for business marketing. While many people are familiar with Instagram on a personal level, it is also becoming a powerful marketing tool for businesses. Marketers know the usefulness of Instagram marketing and use Instagram to market products and services. It is a wonderful platform for sharing visual stories.

Likeden

LinkedIn is a social network for professionals. LinkedIn is generally the platform of choice for B2B companies, especially if your focus is lead generation. Anyone who needs to log in to advance their career should be on LinkedIn. It is also an ideal platform for editorial content. It can help you establish your business as a trusted leader in your field, develop your brand authority, and attract potential customers through conversation. This platform also supports activities that go beyond networking with potential employers, employees, or clients.

Twitter

Twitter is the place to go when your business is about immediacy, and you want to reach your followers with breaking news, announcements, important news, and other breaking news. Most Twitter users are under the age of 50 so the type of content on this platform is easily digestible textual content, for example: Articles, lists, and citations. Images are better than videos on Twitter, but textual content always comes first.

YouTube

YouTube is something of a panacea when it comes to content because a lot of people use it (it is the second-largest search engine in the world after Google). Comedy and music work great on YouTube, but that doesn't mean we can't use

this social media platform for our business. Product reviews, how-to videos, and similar content work especially well on YouTube, especially if it's part of your target market. Once we create a video, it will appear in Google and YouTube search results and we can share it on your other social accounts. If our target audience wants to learn, nothing can beat YouTube.

Tiktok

Tiktok is a short-form, video-sharing app that allows users to create and share 15-second videos on any topic. Its creator, Byte dance, runs a different version of the app, Doyen, in its home market, China. Both versions of TikTok offer a wide selection of sounds and song snippets, along with the option to add special effects and filters. You can also add videos created on your phone. The company promotes the app as a video-sharing social network. According to downloads and active users stats given by Stats counter, the number of present active users of Ticktok in Nepal are 3.7 Million which is huge.

The Parent-Child Relationship is one that nurtures the physical, emotional and social development of the child. It is a unique bond that every child and parent will can enjoy and nurture. This relationship lays the foundation for the child's personality, life choices and overall behavior.

Methods and Procedures

The study employed both exploratory and descriptive research designs using observation, questionnaires, and interviews as methods of data collection. The focus was on primary data, with a mix of qualitative and quantitative data. The research process involved collecting and analyzing both primary and secondary data. The study selected a sample size of 20 households from Ward No. 6, Ganesh-Chowk tole of Birendranagar Municipality, using purposive sampling method. The total population of the ward is 7598, and there are 1767 households. Among the 95 households in Ganesh-Chowk tole, 21% were selected, which included 60 children (37 girls and 23 boys) who have easy access to the internet and smart technological devices. The sampling criteria were based on the accessibility of internet and smart technological devices to children in the selected households

Results

Age Composition of the Respondents

The age of the respondents in the study area was categorized into three groups which are shown in the table given below:

Distribution of Age Composition of the Respondents

Table 1

Age Composition of the Respondents

Age Group	No. of Respondents	Percent
5 to 8 years child	13	21.66
9 to 12 years child	24	40
13 to 16 years child	23	38.33
Total	60	100.0

Source: Field Survey, 2022

Table 1 shows that in 20 households, there are total 60 Childs where 5 to 8 years' child are about 13, and 9 to 12 years' child are 24, 13 to 16 years' child are 23. i.e 5 to 8 years, 9 to 12 years and 13 to 16 years' child are 21.66%, 40% and 38.33% respectively are the sample for the study.

Literacy Status of the Respondents

Literacy is popularly understood as an ability to read, write and use numeracy in at least one method of writing, an understanding reflected by mainstream dictionary and handbook definitions (Moats, 2000).

The literacy status of the study population has been presented in the following table:

Table 2

Literacy Status of the Respondents

Literacy Status	Frequency	Percent
Nursery to 3 Class	13	21.66
Class 4 to Class 6	24	40
Class 7 to SEE Level	23	38.33
Total	60	100.0

Source: Field Survey, 2022

Table 2 shows that out of 60 Children, 21.66 % were in nursery to 3 class, whereas 40 % were read in class 4 to class 6 and 38.33 % were read in class 7 to See Level. The data shows that majority of the respondents were in Class 4 to class 6.

Please follow like above in each tables and para.

Ethnic Composition of the Respondents

In the field work, respondents belonging to different ethnic group have been found which is presented:

Table 3*Distribution of Respondents by Ethnicity*

Ethnic Group	No. of Respondents (Households)	Percent
Brahman	12	20
Chhetri	9	15
Dalit	21	35
Janjati	9	15
Muslim	9	15
Total	60	100

Source: Field Study, 2022

Table 3 shows the ethnic composition of the respondents out of 60 respondents, 12 (20%) respondents is from Brahmin, 9 (15%) respondents are from Chhetri. In the same way the numbers of respondents from Dalit, Janjati, and Muslim are 35%, 15% and 15 % respectively.

Status of Access on the Internet and technological devices of the Respondents

The responses to the first question vary from one household to another. The lowest percentage of participants who answered “Not having internet and technologies devices, i.e. never used the internet before” are 30%. 25% of respondents have medium access and 45% of respondents have very strong access on internet and technological devices. And 30% of participating respondents which have never used the Internet before, they just use simple mobile phone devices.

Accessibility of internet and technological devices to the respondents in the study area is shown in the table given below:

Table 4*Status of Access of Internet and Technological Devices of Study Area and of the Internet Service Provider*

Access Level	Frequency	Percent	Internet Service Provider
Not access on internet and technological devices	6	10	-
Medium access on internet and technological devices	27	45	Worldlink 30%, Subisu 25%, Nepal Telecom NT-Fiber 20%, Data User (Ncell, NTC) 15%

Strong access on internet and technological devices	27	45	Worldlink 45%, Subisu 35%, Nepal Telecom NT-Fiber 10%, Data User (Ncell, NTC) 10%
Total	60	100.0	

Source: Field Survey, 2022

Table 4 shows that out of 60 respondents, not access on internet and technologies devices, medium access on technological devices and strong access on internet and technological devices are 30%, 45% and 45% respectively.

Source of Information of getting access on Internet and Technological devices

Source is a text (sometimes oral or person) from which information or ideas are derived. The different sources from which the respondents have received information on access on technological devices and internet connection are presented in the following table:

Table 5

Source of Information of Getting Access on Technological Devices and Internet Connection

Source of Information	Frequency	Percent
Radio/TV	15	25
Friends	24	40
Neighbors	9	15
Agents	12	20
Total	60	100.0

Source: Field Survey, 2022

Table 5 shows the source of information on getting access on Technological devices and internet connection. Out of the total respondents 25 % had received information of getting access on Technological devices and internet connection from radio/TV whereas, 40 % had received information from friends. Similarly, 15 % had received information from neighbors and 20% get information from agents.

Responds Using Technological Devices and Internet

In the modern era, people are really enthusiastic on technological devices and internet. They want to quality access on them. Here we can find that when and from what time responds are using technological devices and internet via this table.

Table 6*Responds Using Technological Devices and Internet*

Duration of using technological devices and internet	Total no. of responds	%
More than 3 years	27	45
Three years	15	25
Two years	9	15
One year	9	15
Total	60	100.0

Source: Field Survey, 2022

Table 6 explains from how long the respondents are using technological devices and internet connection. Out of 60 respondents 27 being 45% used it from more than 3 years, 15 beings 25% used it from 3 years, 9 beings 15% used it from 2 years and also 9 being 15% used it from 1 year.

Most Used Social Media and Websites by the Respondents of the Study Area

Most Used Social Media and Websites by the respondents have been presented in the following table:

Table 7*Most Used Social Media and Websites by the Respondents*

Purpose of using technological devices and internet	No. of Respondents	Percent
Facebook, Instagram, Ticktok, Youtube	36	60
Students related websites like Merostudy, My Second Teacher, E-Pustakalaya, Neema Academy	3	5
Online Games websites like Pub-G, Free-Fire etc.	21	35
Total	60	100.0

Source: Field Survey, 2022

Table 7 reveals Most Used Social Media and Websites by the respondents. Out of 60 respondents, 36 being 60% used Facebook, Instagram, Ticktok, youtube, 3 being 5% used students related websites like merostudy, my second teacher, e-pustakslaya, neema academy, 21 being 35% used it for online games like Pub-G, Free-Fire etc.

Status of Children when they have Accessibility on Internet and Technological Devices

It can be shown in the following table:

Table 8

What children do when they have Accessibility on Technological Devices and Internet of the Study Area

Age Group	No. of Respondents	What they do	Percent
5 to 8	13	They normally see cartoons, kids rhymes and play normal game	21.66
9 to 12	24	They use it for online classes, play game, some kid found to see porn scenes.	40
13 to 16	23	This age group uses it for online classes, also they use it for see sexual scenes and porn movies, play aggressive games like Pub-G or other. They love to use social media like facebook, youtube, mostly Tiktok.	38.33
Total	60		100

Source: Field Study, 2022

Table 8 reveals that 5 to 8 age group are not in huge risk of internet and technological devices, however risk might start from the age group of 9 to 12 years. Children do a range of diverse and potentially beneficial things online: 13-16 year olds use the internet for school work (85%), playing games (83%), watching video clips (76%) and instant messaging (62%). Fewer post images (39%) or messages for others to share (31%), use a webcam (31%), file-sharing sites (16%) or blog (11%). However, they are also in high risk of sexual harassment as they have started to see porn movies and messages or images [meaning] talk about having sex or images of people naked or having sex,” and 3% say they have sent or posted such messages.

Status of Children's Behaviours when they have not Accessibility on Internet and Technological Devices

It can be shown in following table:

Table 9

Status of Children's Behavior when they have not Accessibility on Internet and Technological Devices of the Study Area

Age Group	Behaviours
5 to 8 years	Not eating their daily meal like breakfast, lunch and dinner without seeing mobile phone, not wanted to go school without seeing rhymes, not doing homework, and getting angry.
9 to 12 years	Seems attacking, love to stay solo and alone, don't interact with other family member, show more aggression than other time.
13 to 16 years	Getting angry quickly without any reason, throw house goods anywhere, fighting parents and shouting face to face. Show their aggression by giving warning parents to leave home.

Source: Field Study, 2022

Parent's View on Technological Devices and Internet to the Children

It can be shown in following table:

Table 10

Parent's View on Technological Devices and Internet to Children of the Study Area

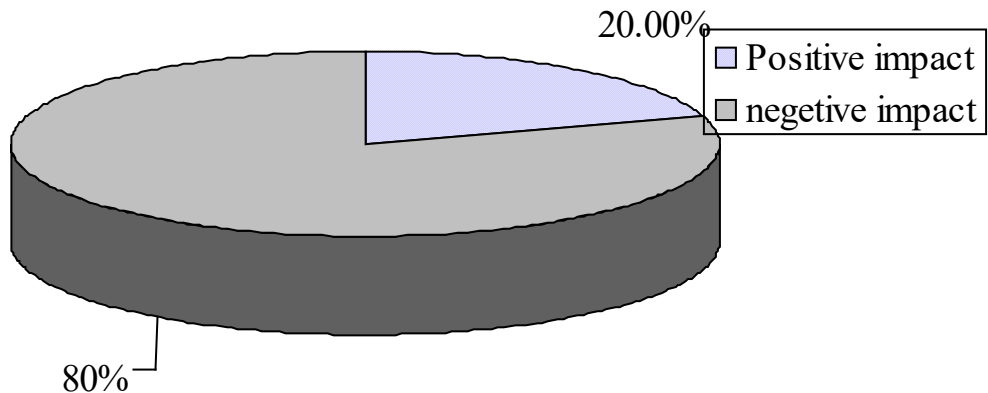
Impact	Frequency	Percent
Positive	4	20
Negative	16	80
Total	20	100.0

Source: Field Survey, 2022

Table 10 shows the responses of the parents on the impact of positive/negative impact of technological devices and internet to children of study sample. Out of the total 20 parents, 20 % are satisfied with positive impacts of technological devices and internet to their child. They said internet must be involved to make great future of child. And 80 % parents said that technological devices and internet are so harmful to their child and it should be controlled by stakeholders. They explained that how internet and technological devices provide negative impact to their child's mentally, physically health as well as it makes them more aggressive and unsocial. The above data have also been presented in figure as follows:

Figure 1

Parents View on Positive and Negative Impact of Technological Devices and Internet to Children



Source: Field Survey, 2022

Discussion

The age composition of the respondents is categorized into three groups, with 5 to 8 years child being 21.66%, 9 to 12 years child being 40%, and 13 to 16 years child being 38.33%. The literacy status of the respondents is divided into three categories, with 21.66% being in nursery to 3 class, 40% in class 4 to class 6, and 38.33% in class 7 to SEE Level. The ethnic composition of the respondents shows that 20% are from Brahman, 15% are from Chhetri, 35% are from Dalit, 15% are from Janjati, and 15% are from Muslim.

The study also investigated the status of access on the internet and technological devices of the respondents. The results indicate that 45% of respondents have very strong access, 45% have strong access, and 10% have medium access. Interestingly, 30% of participating respondents have never used the internet before and just use simple mobile phone devices. The source of information on getting access to technological devices and internet connection was varied, with 40% of respondents receiving information from friends, 25% from radio/TV, 20% from agents, and 15% from neighbours.

The use of technology has brought numerous benefits to children, such as staying connected with loved ones, enhancing IQ, making new friends, fostering creativity, finding help, and improving academic performance. Additionally, technology has also

helped children with special needs and disabilities. It provides a source of entertainment and fun for children. However, with the advantages, come the disadvantages. The digital world has affected children negatively as well. Children are experiencing lower attention spans, minimized social interaction, and increased aggression. Furthermore, the use of technology is also leading to health problems like vision problems, neck pain, and skeletal structure distortion. Overuse of devices is also causing arm, hand, and finger numbness, and can lead to cyber bullying, abuse, and security risks. Sleep quality is also negatively impacted due to the excessive use of technology. Therefore, it is crucial to maintain a balance between the positive and negative impacts of technology on children. Parents and guardians must monitor the usage of technology by their children and limit their screen time. It is recommended to encourage outdoor activities, social interaction, and physical exercises to balance the negative effects of technology. Schools and institutions can incorporate the use of technology as a tool for learning while also emphasizing the importance of physical activities and social interaction. By taking proactive steps, we can minimize the negative impacts of technology on children and ensure that they receive the full benefits of the digital world.

Overall, the information presented in the study is useful for understanding the demographic and technological characteristics of the respondents in the study area. The results can be used to design targeted interventions and policies aimed at improving access to technology and the internet, particularly for children and marginalized communities. For example, the results suggest that efforts should be made to provide access to technology and the internet to children of all ages and literacy levels. Additionally, the results highlight the importance of leveraging various sources of information to disseminate information on access to technological devices and the internet.

Conclusion

The study has analyzed the impact of internet and technological devices to children. Most households have been able to get access on internet and technological devices. By this, obviously, children will also get access on them. In the study, it seems both positive and negative impact of internet and technological devices on children (aged 5 to 16 years).

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Why do Labour Migrants Cross their Border? : A Comparative Analysis between Nepal and India

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Abstract

Cross-border labour migration is the livelihood strategy between Nepal and India for a long. The purpose of this research is to compare and contrast the causes of cross-border labor migration between Nepal and India, with a particular focus on Nepal's Sudurpaschim Province. Research is designed in the post-positivism paradigm, using a mixed method with a strong emphasis on quantitative methods, i.e. QUAN-qual mixing. Field survey and Key Informant Interview (KII) including Focus Group Discussions (FGD) were conducted. The sample size was determined statistically where 370 samples (Nepali labour-migrants to India) and 280 samples (Indian labour-migrants to Nepal) were calculated. Data were analyzed using descriptive statistics for both groups of migrants and then compared between Nepali labour migrants to India and Indian labour migrants to Nepal. The main causes of labour migration between Nepal and India are observed as a short distance, easy entry exit, open border, social network, travel cost, easily communicable, language similarities, climate match and migration decision. The job insecurity and irregularities of getting employment at origin seems major pushing factors in case of Nepali labour migrants but in case of Indian labour migrants, they choose their destination for better opportunities. About 93.0 percent of Nepali labour-migrants and 100 percent of Indian labour-migrants are migrated due to economic causes (i.e. lack of better opportunities, unemployment, poverty) while seven percent of Nepali labour-migrants are found migrate due to the political conflict in Nepal. The result of this study is applicable to understand the current situation of cross border labour migrants which can be supportive to develop the new strategies for economic and safer migration between two countries.

Keywords: labour migrants, cross-border, causes of migration, comparative analysis

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Introduction

Migration is a movement of people from one place to another place for their survival. For getting food and shelter, people moved from one place to another place and they started to live as their conveniences. International Organization for Migration (IOM, 2015) defines migration as movement of individuals or a group across countries and that movement can be temporary, seasonal, permanent due to various reasons including economic, environmental, family, and political. However, United Nation (1993) defined the migration as a change of residence or crossing administrative boundaries.

Cross-border labour migration between Nepal and India has been starting since the generations. It is a major livelihood option in the rural areas of Karnali and Sudurpaschim province (Bhatt, 2016; ICIMOD, 2010; Nepal Rastra Bank, 2016).

According to International Centre for Integrated Mountain Development (ICIMOD, 2010), weak agriculture production in hilly region of Karnali and Sudurpaschim province is not enough for their sustainability and hence people are compelled to migrate India for 4 to 6 months and was mostly to hill and mountain areas of India like Nainital, Badrinath, Kedarnath, Ladhak, and Himanchal Pradesh for their livelihoods. Similarly, a large portion of the Indian migrants in Nepal are from the lesser developed Indian states Uttar Pradesh and Bihar. A number of them migrate to Nepal due to higher wage rates in the destination companies. The key reason for migration to Nepal is due to marginally higher wage, no work permit required and near to boarder areas (ICIMOD, 2010).

According to Revenstein theory (1885), there are certain undesirable factors (push factors) in the place of origin, which stimulates or compels the individual to migrate to the other places. Likewise, there are certain desirable factors (pull factors) in the destination that attracts the migrants. Moreover, the distance between the origins determines the volume of migration between place of origin and destination i.e. higher the distance, lower the volume of migration and vice versa (Gurieva & Dzhioev, 2015). People having poor socio-economic background of Sudurpaschim province exemplifies as seasonal migrants to the India while some resourceful people go to Malaysia, the Gulf States, and other third-world nations. According to Bhatt (2015), the main reasons for migration to India are the ease of access to lower class occupations and the country's lower travel costs compared to the Gulf and other nations however Khatiwada (2014) highlighted that India migration has been decreasing order in last decade due to rise of labour migration to other destination countries (like GCC and Malaysia). The India-Nepal treaty (1950) of peace and friendship established a close and strategic relationship between two neighbouring countries. Due to open

border policy, there is not exact data of migrants across the borders. Larger number of cross-border marriages, seasonal migration and a long history of permanent settlement between the neighbour is difficult to measure magnitudes of migration (Sharma & Thapa, 2013).

The interested question arises that the people from Nepal migrated to India for work and at the same time Indian people are also migrating to Nepal for work. In this condition, it is important to distinguish the causes of cross-border labour migration to each other countries. Many scholars have studies the causes and consequences of labour migration from Nepal to India but there is limited studies regarding labour migration from India to Nepal. In this situation of literature gaps, this comparative study will contribute to evaluate the causes of cross-border labour migration between Nepal and India. The major question for this study is to understand the causes of labour migration between Nepal and India.

Methods and Procedures

Research is designed in the post-positivism paradigm (pragmatism), using a mixed QUAN-qual with a strong emphasis on quantitative methods. The qualitative study assisted in capturing and generating meaning from participants' experiences and feelings. For gathering the qualitative data, focus group discussions, field observation, and key informant interviews were conducted with individuals who had extensive experience and knowledge of Nepal-India migration.

Bhimdatt Municipality of Kanchanpur District is selected as the study area. According to municipality report (Bhimdatt, 2019), 4865 people from different wards migrated to India for work but the population of Indian migrants to Bhimdatt Municipality was not exactly known. For this, survey was carried out for identifying the Indian labour migrants in Bhimdatt Municipality (Mahendranagar). According to nature of jobs (Agriculture, Construction, Manufacture and Service sectors), it is enumerated that 924 Indian labours working in Mahendranagar (Nepal) as a labourer. For quantitative study, a total of 370 samples were used for Nepali labour-migrants to India and 280 for Indian labour-migrants to Nepal. The sample size was determined statistically. Samples in each stratum were drawn randomly. A set of questionnaire was used for data collection through face to face interview. Data have been analyzed using descriptive statistics for both groups of migrants and compared them using a t-test and chi-square test. The qualitative method included two focus group discussions (FGDs), field observation, and two key informant interviews (KIIs) with individuals who had long experience and knowledge of Nepal-India migration. KIIs are selected as purposive sampling technique.

Results and Discussion

The migration between Nepal and India is running for a long. It is observed that Nepali labour migrants choose different far and big cities of India for working destinations whereas Indians choose mostly the nearer distance. However, the destination does not seem a significant factor; rather socioeconomic causes seem the prominent one. This study explored the different causes of cross-border labour migration between Nepal and India. As mentioned by different scholars worked in the migration area, the main cause for labor migration is economic however place of origin and destination, trend and time of migration, selection of destination, causes of selection of particular cities/destination, working history and food status of migrants at their origin describe the causes of migration.

Major Causes of Migration

According to Revenstein and Lee, the migration occurs on the basis of certain push and pulls factors in the place of origin and destination. Most of the scholars expressed that the main cause of migration is related to social and economic factors. CafDowlah (2020) highlights that the migration in the contemporary world is mostly found economic (85%) whether they are legal or illegal or any political refuses. The main cause of cross-border labour migration between Nepal and India also seems economic (Brusle, 2006). Czaika and Reinprecht (2022) explained that of 9 dimensions (Demographic, Economic, Environmental, Human Development, Individual, Politico-Institutional, Security, Socio-cultural and Supranational) and 24 different driving factors are the causes of labour migration however they agreed that socio-cultural dimension are still dominant.

Table 1

Distribution of Labour Migrants by Causes of Migration

Causes of migration	Nepali labour migrants to India		Indian labour migrants to Nepal		Both groups	
	(N)	(%)	(N)	(%)	(N)	(%)
Economic causes	344	93.0	280	100	624	96.0
Political (Conflict/Instability)	26	7.0	-	-	26	4.0
Environmental(Natural)	-	-	-	-	-	-
Total	370	100.0	280	100.0	650	100.0
Pearson Chi-Square Test	Value		Df		Sig.	
	20.495		1		0.000	

Main Causes of Economic Migration						
For getting better opportunity/ Income	56	15.2	111	39.6	167	25.7
For getting basic needs (Poverty)	97	26.2	30	10.7	127	19.5
For getting employment	191	51.6	139	49.7	330	50.8
Total	344	100.0	280	100.0	624	100.0

Note. Main cause of economic migration denotes the causes under the economic migration.

Table 1 shows that about 93.0 percent of Nepali labour migrants and 100 percent of Indian labour migrants migrated due to economic causes (i.e. lack of better opportunities, unemployment, poverty low income) while 7 percent of Nepali labour migrants are found to migrate due to political conflict in Nepal. Among this population, they didn't have a job at their origin though they are not poor (having access to food and other basic needs, but not engaged in any employment at origin). Thus, it can be concluded that the Indian labour migrants (15.2%) are searching for better opportunities/income as compared to Nepali labour migrants (39.6%). In Nepal, as discussed earlier, Indian labour migrants can earn much more than in their origin.

As testing the result by observing the association between different variables i.e. causes of migration, major causes of economic migration, and decision for migration with their country of origin, the p values for each test were found less than 0.01 level of significance and hence null hypothesis was rejected. (H_{01} : There is not significant association between causes of migration and their country of origin). It indicates that there was a statistical significance association between causes of migration and country of origin.

The above data shows that more than double of the Indian labour are migrated for searching better income than Nepali labour migrants which indicates that Indian labour migrants have opportunities in their origin but they are pulled by higher wage in Nepal. In case of Nepali labour migrants, poverty (lack of basic needs) is the main cause of migration to India. It means they don't have access on basic needs in their origin. It is clear that India migration is the livelihood strategy for the Nepali migrants. One of the respondents of this study has shared his bitter experience of poverty which becomes the cause of his migration. One of the respondents says,

“I am 22 years young man with the potentiality to do physical work but due to lack of working opportunities at my origin, I am compelled to migrate to India in search of job. I have 2 Kathha land including my home. So, I used to do

agricultural work with half sharing (Adhiya) of my neighbor. Even after hard work, we didn't have enough money for food, buying medicine or other needful desires. Now I have been working in a hotel in Delhi since then and earn NRs. 20,000.00 per month. It is quite supportive for home expenditure at present and it makes me and my family happy."

The above mentioned statement is an example of happiness of labour migrants. Most of the labour migrants don't have any opportunities at their origin and hence they have alternatives to cross their border for their livelihood. According to them, lower levels of jobs are easily available at the destination which supports to their livelihood.

According to Thieme (2006) and Gill (2003), the major causes of migration to India is poverty, unemployment, declining natural resources, impoverishment, indebtedness, social discrimination, lack of infrastructure, and the Maoist insurgency. Where Gill (2003) urged that seasonal labour migration in Nepal occurs both from push factors (high-level poverty and food insecurity) and pull factors (seasonal employment opportunities elsewhere). Wage rates in India are significantly higher than in Nepal (especially in non-agriculture sectors). The wage differential is the cause of seasonal migration. Wage rates are higher in India and the non-farm sector than in the agriculture sector. Likewise, Samuels et al. (2011) argued that employment opportunities and higher wages were the driving forces for migration from Nepal to India. The main pull factors for migration were economic opportunities in India. Supporting to above statement, Gautam (2012) explained the causes of migration i.e. unemployment, food deficiency, increased expenditure and interest in being economically prosperous, population pressure, and conflict is the push factors while easy availability of work for unskilled labours, cash payment, and other benefits are the pull factors for the Nepal-India migration.

Nepali migrants have been spending their entire life in India for their survival only. Some of the migrants are staying in India since the third generation however they get back to their origin to celebrate their social faiths and cultures. It shows the real panic situation and poverty of Nepali rural citizens however India migration is the livelihood strategy for many of the people at the present as well. The scenario of migration seems clear by the statement of another respondent below:

"I am 70 years old man migrated from Achham to the Kanchanpur district in his childhood. When I became 10 years old, I went to India to work with my relatives. I spent 50 years of my young energetic age working in hotels and as a watchman. In the beginning days in India, I searched for jobs in several hotels and started working for survival. I was not able to continue my job longer time

in any of the hotels because I was too young to serve and do cleanings properly so I was fired from several hotels. For many years, I used to sleep by arranging the benches and tables inside the hotel. I suffered from several problems like a shortage of proper bedding and sleep during both summer and winter seasons. I was not excused by owners even at the time of fever, cold and other sufferings. Gradually, I managed my job security after having long experiences. Now, I am in Nepal but my sons and grandsons are still working in India.”

The long statement expressed by one of the respondents shows the real situation of Nepali labour migrants in India. According to his story, Nepali people have been migrating since long and even now his third generation is living in India. Feeling annoyed, he expressed that they have been surviving in India for their livelihood for generations but they are the citizens of Nepal. Supporting the above statement, Lokshin and Glinkskaya (2008) highlighted that the effect of male migration on the work pattern of women left behind has important implications for social status.

Chaurasia (1980) has conducted “Migration of Labour in Nepal-its causes and consequences”. He conclude that 94.38% migrated to India where as 5.63% migrated to other countries. According to Bala (2017), The cause of labour migration in rural areas of India are less employment opportunities, low wages, drought, lack of basic amenities, landlessness, social factors act etc. They are able to get more employment opportunities, higher income, better wages, better facilities where they migrate. The main pull factors for migration were economic opportunities in India (Samuels et al., 2012). Employment opportunities and higher wages were the driving forces for migration from Nepal to India.

Table 2

Distribution of Labour Migrants by Reason for Family Migration

Reason of Family Migration	Nepali Labour-Migrants to India		Indian Labour-Migrants to Nepal		Both Groups	
	(N)	(%)	(N)	(%)	(N)	(%)
Medical treatment	5	4.4	-	-	5	2.3
Housewife	14	12.4	18	17.5	32	14.8
Economic purpose	94	83.2	85	82.5	179	82.9
Total	113	100.0	103	100.0	216	100.0
Pearson Chi Square Test	<i>Value</i>		<i>Df</i>		<i>Sig.</i>	
	5.501		2		0.064	

Note. Family migration denotes respondents migrated with female (wife).

Pearson Chi square test was carried out and found the result in table 2, shows that there is significant statistical association between reason of migration and migrants' origin but not found significant relationship (p value is accepted) between mode of migration and migrants' country of migration. It indicates that there was no any relationship between reasons of migration (with family) to their country of migration (i.e. origin of migrants). It shows that there could be different other reasons for their migration (family).

Likewise, the reason for female migration with their husband is for medical treatment and household support rather than economic benefits however few females are working at their destination in support of their husbands. Similarly, Lokshin and Glinkskaya (2008); Thieme and Muller (2010) highlighted the gender issues in migration that the work pattern of women left behind due to social status (dependent on their husbands) and lesser bargaining power on household activities. In addition to this, Kansakar (2001) has discussed the issue of the immigration of Indians in Nepal due to various development activities done in the Terai belt of Nepal. Similarly, the increasing number of construction projects and shortage of labour in Nepal is the main cause to receive seasonal Indian workers in groups as demand in hill and mountainous areas of Nepal. Favourable climate/weather in the hilly region of eastern Nepal lures Indian labours, especially from Bihar and Himachal Pradesh (Karki, 2018). At the same time, Bala (2017) highlights that fewer employment opportunities, low wages, drought, lack of basic amenities, landlessness, social and cultural factors are the main causes of migration in rural areas of India and hence the people migrated for searching better opportunities. But, Piya and Joshi (2016) described the causes of migration differently than other scholars. She explained the major causes of labour migration are the existing policies, political transformation and instability, agriculture trends, and political environment in Nepal. But, the findings from this study are not agreed to above mentioned statement properly however the open border policy is the intervening factor for the cross-border migration between Nepal and India.

Time of Migration

Time of migration is one of the prime factors for influencing the migration process. In general, India migration is measured as seasonal migration. Seasonality has different issues coupled with not merely a climatic or environmental issue of adaptation and suitability. Rather, it is also associated with different kinds of socio-cultural, economic, and political causes. In the international discourse of migration, various scholars empirically show that seasonality has dual characteristics being a pull factor as well as a push factor in the migration process (Crawford & Campbell, 2012).

In this particular study, the timing of migration seems to be more regular (i.e. 64.1%, and thus less seasonal) both for the Nepali and Indian labour migrants, 54.6 percent and 76.8 percent, respectively. Mostly the labour migrants of both countries continue their work since migrated however they followed going and coming (*aunejane*) which can say circular migration. It indicates that there is need of jobs at their origin hence they migrated for searching jobs and opportunities at destination. In discussion with migrants, they mostly go to their destination after harvesting their agricultural works in origin however they continue their work at their destination. The causes of migration are their leisure time and unemployment at their origin in some cases.

Table 3

Distribution of Labour Migrants by Time of Migration

Time to migration towards destination	Nepali labour migrants to India		Indian labour migrants to Nepal		Both groups	
	(N)	(%)	(N)	(%)	(N)	(%)
After harvesting agriculture	66	17.8	-	-	66	10.2
During vacation	32	8.7	-	-	32	4.9
At the time of being unemployed	67	18.1	65	23.2	132	20.3
Continuity of work since migrated	202	54.6	215	76.8	417	64.1
No fixed	3	0.8	-	-	3	0.5
Total	370	100.0	280	100.0	650	100.0

Note. No fixed means migrants didn't have fixed schedule for migration, they just moved as per their desire and situation.

Status of Food Security at Origin

Food insecurity seems to be one of the push factors for the migrants at their origin in both cases (Nepal Rastra Bank, 2009), where the causes of migration to India is due to lack of food security in terms of production. Migration to India is the livelihood strategy for the Karnali and Sudurpaschim hills of Nepal. It is because of the lack of food security in terms of production. Migration to India is a long-established practice due to the nearby distance from the cheapest destination (Nepal Rastra Bank, 2009; Brusle, 2008). In Brusle's other study in 2006, he described migration as a household supporting factor to have access to basic needs in particular by paying back loans taken out in the village. A strategy for the management of food security is one of the important livelihood outcomes both for migrants and non-migrants.

Table 4*Distribution of Labour Migrants Reporting the Food Security Status at Origin Place*

Status of food security	Nepali labour migrants to India		Indian labour migrants to Nepal		Both groups	
	(N)	(%)	(N)	(%)	(N)	(%)
Landless	5	1.4	53	18.9	58	8.9
Less than 3 months	76	20.5	45	16.1	121	18.6
3-6 months	109	29.4	105	37.5	214	32.9
6-9 months	99	26.8	71	25.4	170	26.2
More than 9 months	81	21.9	6	2.1	87	13.4
Pearson Chi-Square Test	<i>Value</i>		<i>Df</i>		<i>Sig.</i>	
	106.590		4		0.000	

Note. Data is calculated on field survey, 2021.

In this study, it is found that a few i.e. 1.4 percent of Nepali labour migrants and 18.9 percent of Indian labour migrants are landless. The landlessness in rural social structure is itself an indicator of poverty and dependency. Similarly, 20.5, 29.4, 26.8, and 21.9 percent Nepali labour migrants and 16.1, 37.5, 25.4, and 2.1 percent Indian labour migrants have food sufficiency for less than 3 months, 3-6 months, 6-9 months and more than 9 months, respectively. Thus, food insecurity seems to be one of the push factors for both the migrants at their origin. Statistically, there is a significant association between the status of food security and their country of origin (as the p-value is less than the level of significance).

In this context, Crush (2013) argues that the issue of food security is strikingly absent from current debates about the relationship between migration and development. Nepali labour migrants manage their food by taking borrowing/debt, engaging in labour work, and practicing half-sharing in agriculture productions. Including this, there is the provision of food provided to Indian poor families by the government. Every member of a family gets 5 kg of food (wheat or rice or including both as per their choice) per month. Likewise, the sources of income for the family of migrants are found to be diverse. Most of the (i.e.43.5%) have the main source of income at their origin is remittance based on foreign employment. At the same time, ICIMOD (2010) explained that India migration is the livelihood strategy for Nepali migrants because there is not enough food in rural areas and hence they are compelled to migrate to India. Food insecurity (due to the small size of land, less productive, fragmentation of land, and little cultivated land), unemployment, political conflict, poverty, and lack of opportunities are the main factors of migration.

Reason for Selection of Particular Destination

India is the preferred destination for western mountain/hills migrants of Nepal but the choices of migration vary with the forms of social exclusion and inclusion as represented by the socio-economic status of the households.

Table 5 describes some interesting facts that are the sources of information for migration. The main source of information seems to be generated with relatives and friends (50.9%) for both migrants. It is followed by the sources of information related to the contractor and employer (25.4%), though it seems more significant to the Indian labour migrants as compared to the Nepali labour migrants. The family-related source of information holds also an important role in migration as evidenced by the Nepali labour migrants to India (33.8%), and less by the Indian labour migrants to Nepal (10.4%). Moreover, the reason for choosing a destination due to parents/social relationship seems to be more important for Nepali a labour migrant (56.5%), which does not stand anymore with the case of the Indian labour migrants. The table shows more than half (i.e. 53.9%) of the total Indian labour migrants took a migratory move to Nepal because of easy availability/easy entry exit. To determine the relationship between the source of information and country of origin, the Pearson Chi-square test was carried out where the p-value was found less than its level of significance (0.01) which indicates that there is a statistical association between these two variables. Likewise, it was also seen that the relationship between the reason for choosing a particular destination and their country of origin.

Table 5

Distribution of Labour Migrants by Source of Information and Reason for Selecting the Destination

Source of Information	Nepali labour migrants to India		Indian labour migrants to Nepal		Both groups	
	(N)	(%)	(N)	(%)	(N)	(%)
Relatives/friends	204	55.1	127	45.3	331	50.9
Family	125	33.8	29	10.4	154	23.7
Contractor/employer	41	11.1	124	44.3	165	25.4
Pearson Chi-Square Test	Value		Df		Sig.	
	109.139		2		0.000	
Reason for Choosing Destination						
Easy availability/Entry-exit	51	13.8	151	53.9	202	31.1
Parents/Social relationship	209	56.5	-	-	209	32.1

Higher wage rate	110	29.7	129	46.1	239	36.8
Total	370	100.0	280	100.0	650	100.0
Pearson Chi-Square Test	<i>Value</i>		<i>Df</i>		<i>Sig.</i>	
	252.393		2		0.000	

Note. Contractors are agents to bring job offers to labour migrants at destination.

Furthermore, social networks play a vital role in migration and the choice of destination too (Gurung, 2012) and it reduce the migration cost (Lamichhane, 2018). At the similar prospect, Bhardwaj (2010) described the open border between Nepal and India as a viable bond of a mutual relationship between the two societies and it is a matter of trust between the two governments.

According to Thieme (2006), the migration between Nepal and India is due to the strong bonding of social capital. Family and kinship are the most important coping mechanism. Likewise, Subedi (1991) further described that the extension of the Indian railway network up to the border of Nepal raised migration between both countries. He further stated that a large number of Nepalis and Indians are Hindus and have common festivals and faiths, as well as the majority people of the Tarai, are similar in their physical appearance, language, and social behaviours to the Indian people including kinship after marriage in cross border districts. In support of this study, K.C. (1998) and Basyal (2020) concluded that emigration from Nepal to India has been influenced by employment in unskilled jobs, income, and unrestricted rules of entry and exit. Indian immigration to Nepal is influenced by the differential opportunity for employment, demand for skilled and semi-skilled manpower, small distance, low cost of transportation, unrestricted entry and exit, and closer affinity in religion, culture, language, and family ties. In addition,

Transport Cost for Traveling to Destination

The cause of labour migration between two countries is due to easy availability/easy entry exit. It could be due to the open Nepal-India border and the larger potentiality of availability of jobs in nearby the border area (from Uttarakhand and Uttar Pradesh in particular) that would ease their travel and save the cost by reducing other formalities and difficulties in the adjacent Nepali destinations like Bhimdatt Municipality as described by Ravenstein theory (migrants move to near distance or step by step). Devkota (2016) describes that the Nepali people from poor family migrated to India; it is because both the cost of migration and wage rate is lowest in the India.

Table 6

Distribution of Labour Migrants according to Transportation Costs

Transport cost in Rs. (Indian Currency)	Nepali labour migrants to India		Indian labour migrants to Nepal		Both groups	
	(N)	(%)	(N)	(%)	(N)	(%)
Below 500	14	3.8	262	93.6	276	42.5
500-1,500	167	45.1	11	3.9	178	27.4
1,500-3,000	66	17.8	7	2.5	73	11.2
3,000-5,000	122	33.0	-	-	122	18.8
Above 5,000	1	0.3	-	-	1	0.1

Note. Transportation cost is taken as Indian currency; it is because both groups of migrants use Indian currency for transportation cost.

Table 6 shows that the volume of cross-border labour migration between Nepal and India is high because of the low transport cost. Most (93.6%) Indians come to Mahendranagar (Nepal) from near borders and are paid less than Rs. 500 in Indian Currency while Nepali labour migrants are paid comparatively higher than Indian labour migrants to reach their destination.

Traveling Hours and Means of Transportation, and Crossed the Border

There are 22 official entry points to cross the border between Nepal and India where six extra points are referred to as the immigration points for the nationals of any third country, i.e. Banbasa-Mahendranagar, Gourifanta-Dhangadi, Rupadiya-Nepalganj, Sunouli-Bhairawa, Raxoul-Birganj and Naxalbari-Kakarbhitta (Ministry of Commerce and Industry/ GoI, 1991). Migration to India is a long-established practice due to the nearby distance with the cheapest destination.

Table 7

Distribution of Labour Migrants by Travelling Hours to Reach the Destinations

Time for travel	Nepali labour migrants to India		Indian labour migrants to Nepal		Both groups	
	(N)	(%)	(N)	(%)	(N)	(%)
< 3 hours	-	-	235	83.9	235	36.1
3-8 hours	15	4.1	27	9.7	42	6.5
8-12 hours	174	47.0	11	3.9	185	28.5
12+ hours	181	48.9	7	2.5	188	28.9
Total	370	100.0	280	100.0	650	100.0

Note. Time to reach from origin to destination is taken as travel hours in this data.

As evident in Table 7, the majority of the Indian labour migrants (i.e. 83.9%) arrived at Mahendranagar (destination) below 3 hours due to the short distance and only 2.5 percent migrants belonging to West Bengal takes more than 12 hours to arrive at their destination, while 47.8 percent takes (8-12 hours) and 48.9 percent of Nepali labour migrants takes more than 12 hours for travel to reach their destination due to selection of long distances. Only 4.1 percent of Nepali labour migrants take (3-8 hours) to reach their destination while 9.7 percent of Indian labour migrants expending a similar time traveling.

According to Brusle (2008), the availability of work, networks, and distance are the factors to influence the choice of a destination made by migrants. It is found that local labour contractors actively recruit seasonal laborers to work in road and house construction in Uttarakhand and Himanchal, where many Nepalese also get involved. Mainly, India migration is organized and supported by kinship networks. Over the years, the cause of migration is social networks and kinship. When they (labour migrants) come to visit their family in Nepal during festivals, they take one or more of their relatives or neighbours with them to India (Donini et al., 2013). The cause of larger size of the population migrated to Delhi from Bhimdatt Municipality is due to the higher chances of job availability, near distance and social network. Basyal (2014), Seddon and Gurung (2001) have pointed the main destinations of Nepali labour migrants in India are Delhi, Mumbai, Gujarat, Bangalore, Kerala, Pune, Ludhiana, Amritsar, Varanasi, Agra, Kolkata, Lucknow, Kanpur, Chennai, and the hill towns of Almora, Nainital, Shimla and Pithoragarh. Likewise, Bhagat and Keshari (2010) showed that seasonal migration from Nepal to India is highest in Uttarakhand followed by Madhya Pradesh, Maharashtra, Andhra Pradesh, and Bihar.

The wage differential is the cause of seasonal migration. Wage rates are higher in India and non-farm sector than in agriculture sector. Seasonal migration is the main livelihood source of the poor households in villages (Gill, 2003). According to Haas (2000), migration takes place due to so many reasons such as conflict, political and social instability, and economic incentives. Whereas the Chettri (1987) explains the main causes for migration in Nepal are economic disparity between population and productive land, the low productivity of soils, lack of employment opportunities in the hills, and the perceived economic and social advantages in the low land by the migrants. Social networks based on kinship, friendship and community ties are central components in migration systems analysis. These components link sending and receiving countries and mediate between individuals actors to larger structural forces which continue the migration long after the original impact of migration has ended. Kinship ties are major sources of personal networks in migration and it reveals the importance of social relations in migrating behavior as well as it provides insight into the origins, composition, direction, and persistence of migration flows (Boyd, 1989).

Conclusion

The findings reveal that the major factor of migration includes the wage differences, job availability, food security, open border corridors and the networks of family and relatives. Comparatively, it is observed that the causes of labour migration between Nepali labour migrants to India and Indian labour migrants to Nepal is slightly different. Indian labour are found migrated to Nepal due to opportunities of jobs in near border (short distance), low transportation cost. In addition, some of the Indian migrants are landless and hence they do not have work at their origin. At the same time, Nepali labour are migrated to India for getting opportunities which support to their livelihood strategies. They mostly engaged on agricultural activities at their origin but do not have excess food for their family. Nepali labour migrants do have alternative options at their origin and hence compelled to migrate towards India. The economic causes were dominant to have migration for both the migrants of Nepal and India. In conclusion, Indian labours are found migrated to Nepal for better employment or opportunities however Nepali labour migrants to India for their livelihood strategy rather than getting better opportunities. This study compares the ground realities of migrants from both countries which also supports to the policy makers to recommend for the safe, prestigious and economic migration.

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Analysis of Pectin and Essential Oil *Citrus L. Lemon Peel*

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Abstract

The most well-known group of aromatic flowers is the genus *Citrus*. One of the most significant fruit crops in the world belongs to this genus and it is widely grown for the market for fresh fruit and processed juice. The phytochemicals were analyzed in the lemon peel essential oil extract. Phenols, terpenoids, saponins, and alkaloids were analyzed in the acetone extract whereas flavonoids, phenols, and saponins were analyzed in the ethanol extract of Lemon peel. The *Fusarium* was inoculated in Petridis and sprayed essential oil over the Petridis. One Petridis was free from essential oil. The essential oil free Petridis was observed spreading fungus with multiplication but the growth of fungus was stopped in Petridis which was sprayed with essential oil after three weeks. The pectin was extracted from lemon peel and calculated equivalent weight of pectin was 200g. It is found that lemon peel has a big application in medicinal and pharmacological benefits. Pinontoan et al., 2019 reported that essential oil extract of Lemon peel have equal effectiveness against both *Trichophyton rubrum* and *Fusarium*. The family Rutaceae is dominated economically by the genus *Citrus L.*

Keywords: *Citrus L. limon* peel, Phytochemicals, Antifungal activity, extraction of Pectin, equivalent weight of pectin

Introduction

One of the most significant fruit crops in the world belongs to this genus (Abouzar & Nafiseh 2016) and it is widely grown for the market for fresh fruit and processed juice (Ollitrault and Luis 2012). The most well-known group of aromatic flowers is the genus *Citrus* (Morton and Telmer 2014)). The plant is known by its scientific name, *Citrus L.* From an economic perspective, the family Rutaceae is

dominated by the genus *Citrus L.* There are about 25 species which are unique to the Southeast's Himalayan foothills (Wu et al., 2018). It is a member of the subphylum Aurantioidea (Rutaceae Family, from the bitter herb Rue) (Hamed et al., 2019).

Essential oil extracted from *Citrus L.* fruit peel which is typically derived through distillation or solvent extraction is the main product of the genus *Citrus L.* (Mondello et al., 2005). *Citrus* peel essential oils are extracted by cold pressing, and their antifungal effectiveness is determined using an agar dilution method. The effects spotlight the *Citrus* essential oil extremely good antifungal activity. *Pomelo* essential oil used to be as quickly as most exquisite in opposition to *P. expansum*, whereas lime essential oil used to be most immoderate high-quality in opposition to *M. hiemalis* and *F. proliferatum*. These effects recommend that natural antifungal redress made from *Citrus* indispensable oils can be used in the food, pharmaceutical, and attractiveness industries (Van Hung et al., 2013). The okra disease-causing *Fusariumoxysporum* was prevented from growing in culture by extracts of *Citrus species* (*Hibiscus esculentus*). Peel extracts from *C. reticulata*, *C. aurentifolia*, and *C. sinensis* each demonstrated inhibitory effects that were, in turn, 83.55%, 71.10%, and 68.14%. The strongest triclosan, benzetonine, limonin, and nomilin have been determined to include substantial amounts of alkaloids and phenolic phytoconstituents in grapefruit (*Citrus vitis*) and candy orange (*Citrus sinensis*), according to a chemical composition analysis. Both benomyl and the synthetic fungicide *C. sinensis* peel extracts are toxic to fungi (Okwu et al., 2007).

Citrus L. peel essential oils have great therapeutic potential and display a range of biological effects due to their abundance in flavonoids (flavone, flavonol, and flavanone), terpenes, carotenes, and coumarines, which have an antibacterial impact (Tepe et al., 2005). Pharmaceutical companies are frequently using *Citrus L.* essential oil for an antibacterial, antidiabetic, antioxidant, insect repellent, larvicidal, antiviral, antihepatotoxic, and antimutagenic agent (Kanaze et al., 2008). Lemon oil is made from the oil-containing cells of the skin and is rich in bioactive monoterperoids including citral, linalnol, p-limonene, and pinene (Milind et al., 2008).

The three most significant compounds in *Citrus L.* required oils (essential oil), which are complicated combinations, are sesquiterpenes, monoterpenes, and oxygenated monoterpenes. They serve as the plant's main source of aroma and establish its secondary metabolism. A few of the factors that affected the required oil yields and chemical compositions were the season, drying temperature, pretreatment, and extraction methods. Due to differences in their chemical composition, these chemicals have an impact on antifungal, antibacterial, and antioxidant results simultan essential oilusly. The behavior of a single or a small number of molecules cannot completely explain the natural results of complex essential oil mixtures. In addition,

aliphatic hydrocarbons, alcohols (such linalool), and aldehydes are present in *Citrus L.* indispensable oils (like citral).

Worldwide, mycotoxigenic fungi are viewed as major risks to food safety. The fungi can develop lethal mycotoxins that can significantly injure both humans and cattle in addition to causing food spoilage those results in loss and waste (Jing et al., 2014). There were 17 parts found in the lemon peel essential oil, the two main ones being limonene (68.65%) and terpinene (10.81%). Orange peel essential oil contains eight different components, mainly limonene (95.51%) and myrcene (1.98%). (Akarca et al., 2021). Clove ethanolic extract was discovered to be the most powerful antifungal agent compared to acetic acid extract preventing the growth of several molds by 70% to 100%. (Phyllis & James, 2000).

Lemon oil has a variety of physiological purposes that are used commercially, including flavorings and hepato regenerative, anti-cancer, antioxidant, anti-inflammatory, antibacterial, antifungal, and antiviral effects (Bora et al., 2020). Lemon peel is rich in active compounds like pectin, polyphenols, and flavonoids as well as volatile molecules like terpenes, esters, and alcohols (ChengYu et al., 2021).

Pectin is a structural hetero polysaccharide that is integral for the motion of terrestrial flora. The pectin crew of complicated polysaccharides acts as a hydrating agent and a binding agent for the cellulose regional in the transportable partitions of massive plants. Pectin and pectino are the Greek phrases which means “congealed and curdled” (Thakur et al., 1997).

Literature Review

Citrus fruits cultivated in Colombia’s peels furnished proof of variants in chromatographic profiles on each a qualitative and quantitative level. The predominant resources are observed in *Citrus* fruits as of proper now have been recognized as coumarins, furano coumarins, and polymethoxylated flavones. The peels of Tahitian limes, Key limes, Mandarin limes, and mandarins incorporate an immoderate attention of coumarins and furano coumarins in contrast to candied oranges, which have a predominance of polymethoxylated flavones. The compounds limetin, isopimpinellin, bergaptene, and bergamottin, which had been as swiftly present in Tahitian and Key limes, have been eradicated. Geranoxy troubles used to be the major trouble with Key lime and Tahitian lime. Tahitian lime fruits dealt with 17 super elicitors over the first ten days no longer extensively a variety of from manipulate in phrases of coumarin and furano coumarin undertaking. The amount of coumarins and furano coumarins in fruits handled with water dropped on 13th and 16th days, whereas it was maintained or increased in fruits handled with controllable. Antifungal recreation (mycelial increase and spore germination) of the remoted compounds confirmed that furano coumarins

had been extra actives than coumarins. bergaptene and limettin exhibited the very best inhibitory outcomes towards *Colletotrichum sp.* being even increased than these of regarded phytoalexins scoparone and umbelliferone. Also, the combination of bergaptene and limettin displayed even increased antifungal impact than the person compounds. The defensive mechanisms of *C. latifolia*, *C. aurantifolia*, and *C. limonia* may become concerned in response to isolated chemicals (Ramrez-Pelayo et al., 2019).

UV-B radiation (UVBR) therapy has already been shown to shield postharvest lemons from the green mold *Penicillium digitatum*. Here, the effectiveness of flavedo extracts from both irradiated and non-irradiated lemons against *P. digitatum* was tested, and components that might be in charge of this action. In comparison to extracts from normal lemons, the flavedo extracts from UV-B exposed lemons (UVBLE) showed greater antibacterial activity (CLE). Conidia exposed to UVBLE exhibited a time dependent reduction of germination and oxygen uptake, as well as a noticeably increased generation of ROS and TBARS and membrane permeability. Two fractions (A and B) that changed as a result of the irradiation were identified through chemical analysis of lemon extracts; Fraction A decreased and Fraction B increased. Compared to Fraction A, Fraction B demonstrated greater antioxidant and antifungal activity. Both fractions contained complex samples that were high in flavonoids. The differences in biological activities and the greater ability of UVBLE to suppress the pathogen in vitro than CLE might both be explained by the unique composition of each fraction. Based on our findings, UV-B radiation treatment can boost the flavedo lemon's natural defenses by, among other things, inducing the creation of phenolic compounds (Ruiz et al., 2017).

The limonene chemical made up the majority of the crucial oils of the 5 species of *Citrus*. Due to the similarity of the constituent limonene's traits in *C. sinensis* (orange) and *C. reticulata* (ponkan), the critical oils have been divided into three businesses the usage of essential oil elements evaluation and hierarchical cluster evaluation (HCA). *C. medica* (citron) and *C. aurantifolia* (lime) are protected due to the similarities in regard to the factors neral, geranial, terpineol, and p-cimene. limonia (lemon lime) are in relation to the content material cloth of the issue terpinene, (1-8) cineole, and pinene.

All of the essential oils are antifungal activity against the three phytopathogens *F. oxysporum*, *A. alternate* and *C. musae*. The EC50 (Half maximal effective concentration) values of the essential oils of *Citrus medica* (citron) and *Citrus aurantifolia* (lime) have decreased as a result of the synergism between limonene, neral, and geranial (de Souza et al., 2013).

Critical oils derived from plant life can efficiently deal with postharvest ailments of fruits and veggies as a choice to artificial fungicides. It was once examined in vitro and in vivo if the imperative oils from the herbs oregano (*Origanum vulgare* L. ssp. *hirtum*), thyme (*Thymus vulgaris* L.), and lemon (*Citrus Limon* L.) had been high quality in opposition to countless massive postharvest pathogens (*Botrytis cinerea*, *Penicillium italicum* and *P. digitatum*). According to in vitro tests *P. italicum* did not exhibit mycelium growth in the presence of thyme essential oils at a concentration of 0.13 μ l/ml. Additionally, the spore germination used to be effectively decreased by way of the usage of three species are quint essential oils. The properly sized efficacy displayed in vitro by using the use of integral oils used to be as soon as supported via the in vivo trials. To reduce the severity of *B. cinerea* infected fruit ailments in tomatoes, strawberries, and cucumbers, these oregano and lemon oils have been frequently efficient. Oregano essential oils are 0.30 μ l/ml absolutely suppressed *B. cinerea*'s grey mildew growth in tomatoes. Additionally, lemon fundamental oils substantially lessened the severity of the gray mildew condition. Lemon vital oils at 0.05 μ l/ml absolutely suppressed the increase of gray mildew on strawberries. Additionally, cucumber fruits contaminated with *B. cinerea* had been decreased by way of 39% when lemon integral oils had been used at 0.05 μ l/ml. According to these findings, fundamental oils should be employed in formulations that are proper for the administration of postharvest ailments added on by means of the *Penicillium* and *Botrytis* pathogens (Vitoratos et al., 2013).

The practicable of the use of *C. limon* peel extract for the manufacturing of herbal fungicides looks tempting and acceptable due to its accessibility, safety, pest resistance, lack of damage to nontarget species, lack of harmful outcomes on plant growth, and affordability. The finding proved that *C. limon*'s methanolic extract had in vitro fungicidal properties. Therefore, extra lookup is wished to extract and purify bioactive antifungal compounds from *C. limon* and decide how they fight soil borne plant fungal infections (Pallavi et al., 2022).

The disc diffusion and agar dilution strategies have been used to check the antifungal pastime of 4 dermatophyte traces (*Trichophyton rubrum*, *Microsporum canis*, *Trichophyton mentagrophytes*, and *Microsporum gypseum*) for prior to this study between 1.54 and 2.43% (w/w) of EO have been extracted from the *C. limon* peel is greater and summer season yields. Three aspects of EOs encompass limonene (43.45–58.75%), pinene (4.73–13.23%), and terpinene (8.06–11.04%). With inhibition zones ranging from 16.63, 0.38 to 90.00 mm, minimal inhibitory concentrations (MIC) of 0.6 to 5 mg/ml, and minimal fungicidal concentrations (MFC) of 1.25 to 10 mg/ml, *C. limon* peel EO exhibits strong antifungal activity against the tested strains, according to the evaluation of the antifungal activity. Results for MIC (0.6-2.5 mg/

ml) and MFC (1.25-2.5 mg/ml) indicated that spring harvest EO was marginally more efficient. The EO of *C. limon* peel exhibits seasonal fluctuation in chemical composition and antifungal activity as well as substantial antifungal potential, and is effective in treating dermatophyte induced fungal infections (Hadj Larbi et al., 2023).

The antifungal hobby of the oils and its elements (terpineol, terpinen-4-ol, linalool, and limonene) in the direction of two plant pathogenic fungi, *Penicillium digitatum* and *Penicillium italicum* isolated from a vary of internet websites in Tunisia, used to be as soon as assessed the utilization of the poisoned foods technique and the agar true diffusion assay. Nerola oil tested the best diploma of activity, with an inhibition area diameter of 32 mm and an inhibition share of more than 50% for *P. italicum* isolated from Soliman. Leaves critical oils followed, with an inhibition area diameter of 22.6 mm and an inhibition share of 60.7 2.8% for *P. italicum* isolated from Soliman. Peel fundamental oils displayed the lowest stage of workout in opposition to all examined isolates. In the past, fungus sporulation was once hastily lowered to 22.5% for *P. italicum* and 25% for *P. digitatum* attention of 50 mg/ml of neroli oil, respectively. Additionally, after being uncovered to 50 mg/ml of neroli oil, the weight of *P. italicum* and *P. digitatum* mycelia was once as unexpectedly decreased by means of the use of round forty conditions. Accordance to in vivo tests Neroli oil is famous antifungal action, with a 36% discount in infection incidence after storage. The isolates that had been labeled as fungicide resistant have been susceptible to the results of the oils (Trabelsi et al., 2016).

In addition to assorted concentrations of arabinose, galactose, and glucose residues, all extracted pectins have been particularly focused in galacturonic acid. It is used to be decided that the 4 foremost fractions represent rhamnogalacturonans with solely minor modifications in their nice structure based on the low acetyl concentration, excessive acetyl content, and rhamnogalacturonase degradability, polygalacturonase was once in a position to breakdown the fifth portion which had a greater awareness of galacturonic acid (Ros et al., 1996).

It is decided that jam may be made with both lemon and orange. The low gel strength of the jam can be addressed by adding pectin during processing to achieve the economically acceptable gel strength, or the deficiency can be made up for by using a combination of fruits high in pectin. The flavor and color may also be enhanced by combining with other fruits. It is highly advised to promote the manufacturing of jam at the household level utilizing local raw resources like sugar beet, and stringent conditions must be accessible while making jam at home. On the utilization of natural pectin from regional fruits for the creation of jams, more research is advised (Sulieman et al., 2013).

Numerous fruits and greens naturally include pectin, an anionic carbohydrate. Despite being closely utilized in the meals sector, pectin has additionally been studied for utilization in organic purposes such as most cancers targeting remedy delivery, and wound dressing. In our investigation, we created chitosan/pectin cryogels through mixing extracted pectin (from the albedo of lemon peels) with chitosan (as a herbal polymer). Analyses each qualitative and quantitative have been carried out on the extracted pectin. Cryogelation used to create chitosan/pectin spongy super macro porous cryogels in a range of weight to chitosan ratios (100:0, 80:20, 60:40, and 40:60, w/w). By employing FTIR, it was confirmed that pectin and chitosan had polyelectrolyte interactions and that chitosan had been crosslinked with glutaraldehyde. Cryogels' porosity was identified swelling ratio, degrading behaviors, and mechanical characteristics. Cryogels' average pore sizes and pore shape were revealed by SEM examination. Following thorough study, 40:60 chitosan/pectin cryogel was chosen for cytotoxicity tests. To assess the in vitro cytotoxicity of scaffolds, glioblastoma (U-87 MG) cell line was used. The scaffolds' nontoxicity and ability to support cell adhesion and vitality were verified by MTT assay and SEM analysis (Boluda-Aguilar et al., 2013).

With an extraction period of 141 minutes and a liquid-solid ratio of 29:1, natural citric acid used to be used to extract pectin from pomelo peel. The consequences confirmed best yield of 39.72% and a DE of 57.56% at pH 1.80 and 88 °C. When in contrast to different extraction parameters, pH had the largest have an impact on pectin yield and DE values. The yield and DE values may want to be exactly envisioned by means of the quadratic fashions created from the optimization study. Pomelo peel yields of pectin are equal to these from different sources (Liew et al., 2018).

On a dry weight basis, we decided that the manufacturing of a hundred and fifty grade pectin from smooth peel leached in the lab was once as soon as 65.6 and 55.9% for lime and lemon, respectively. Lemon peel produced yields of 41.1, 41.1, and 25%, respectively, when dried to ultimate moistures of 15-20, 8-12, and 3-7 % (Crandall et al., 1978).

Materials with photocatalytic, adsorption, and antibacterial capabilities have been consistently used in waste water treatment techniques. Through electrospinning, fly ash doped TiO₂ nanofibers were made, and they were used to rid water of bacteria and organic contaminants. This technique makes use of fly ash's natural adsorbent properties, the well-known photocatalytic and antibacterial properties of TiO₂, and both (FA). Fly ash and TiO₂ combined to create a nanofiber with outstanding adsorption, photocatalytic activity to break down methylene blue, and antibacterial activity to combat Escherichia coli. The results of the study demonstrated how effective composite nanofibers are in filtering water (Saud et al., 2015).

Methods and Procedures

Fresh lemon peels (*Citrus Limon*) were bought at the Baglung Bazar market and cleaned before being peeled. Before the experiment, the freshly peeled lemon was dried and ground into powder. *Citrus* oils are truly unstable mono terpene hydrocarbons (Essential oils). *Citrus Limon* essential oils are many times hired through skill of organizations in the chemical and pharmaceutical industries due to their antifungal qualities.

Experimental Methods

Methods of Essential Oil Extraction

Fresh lemons were bought from a neighborhood market in Baglung bazar and carefully cleaned with running water. A sterilized knife was used to remove the peels, which were then shade-dried for 4-5 days at room temperature. Using an electric blender, the dried peels were ground into a powder and put into air tight containers for later use. For extraction, ethanol and acetone, two distinct solvents, were utilized. 250 ml of solvent and 10 g of powdered lemon peels were added to a soxhlet (ethanol or acetone). The solvent (acetone or ethanol) was warmed to 78°C. The essential oil was put into a thimble for storage (Hussain et al., 2018).

Antifungal Activity Analysis Techniques

PDA media were created in the botanical laboratory utilizing the supplied PDA powder (1 liter of water, 200 grams of potato, 20 grams of dextrose, and 20 grams of agar). The media were finished after 45 minutes in the autoclave. The spritz cleaned the surroundings. The three plates were smoothly filled with media after a hole was made in them. One of them was sprayed with essential oil in the Botany Laboratory DMC, Baglung, and then the *Fusarium* was dipped into it and incubated for three weeks at 25°C. Clean zones were discovered to exist or not after 48 hours (Pinontoan et al., 2019).

Phytochemical Screening

Mace, Wager, Evans, and Kokate studied phytochemical screening to examine the Alkaloids, Glycosides, Saponins, Terpenoids, Sterioids, Carbohydrate, and Protein in accordance with conventional methodology. According to Ramakrishnan et al., proteins and carbohydrates were also analyzed. This investigation identified these chemicals' existence or absence through general reactions. The phyto-chemical qualities of the essential oil were confirmed by the qualitative examination of the oil (hot ethanol extract and hot acetone extract). Analyses of the following phytochemicals were conducted:

Flavonoids Test

Alkaline Reagent Test

Two milliliters of imperative oil have been used to dilute the sodium hydroxide. The presence of flavonoids is established via the truth that the color of the response to an choice adjustments from a seen yellow to colorless when diluted acid is applied.

Lead Acetate Test

Two milliliters of water and two drops of lead acetate were used to dilute the essential oil. The previous golden color of the precipitation may have also played a role in the increased presence of flavonoids.

Test for Flavonoids

0.5 ml of the sample solution and 2 ml of distilled water were blended, and then 0.15 ml of a 5% NaNO_2 solution was added. 10% solution of AlCl_3 was added after six minutes. 2 cc of a 4% NaOH solution was needed to complete the mixture. Following complete blending, the mixture was allowed to stand for an additional 15 minutes. It was immediately increased to 5 ml by adding water to the capacity. The pink tint of flavonoids serves as a symbol.

Phenol Test

Two milliliters of integral oil extract had been mixed with two milliliters of 5% ferric chloride to detect phenols (FeCl_3). A shiny bluish green color indicates presence of phenols.

Saponins

Two milliliters of the filtered extract sample had been mixed in 1 milliliter of distilled water in a test tube, and the test tube was violently shaken to produce a consistent. Three energetic drops of essential oil had been as soon as utilized to the foam. Presence of saponins looks frothy.

Alkaloids Test

2 grams of extract had been brought to a 10 ml combination of methanol and 1% HCl that used to be heated over water earlier than the combination used to be filtered. Orange precipitation suggests that presence of an alkaloid. Alkaloids was detected by Mayer's test.

Mayer's Test

The filtered material used to be as soon as diluted with a few drops of Mayer's reagent to yield 1ml to remove precipitation or turbidity indicates alkaloids.

Test for Proteins

After combining 0.5 ml of essential oil extract with an equal extent of 1% sodium hydroxide, a few drops of copper sulphate was cautiously added and the fluid's transformation to purple indicates presence of proteins.

Methods of Pectin Extraction from Prepared Sample

A beaker (1000 ml) holding 500 ml of water was filled with the 100 grams of dry peels individually. PH was increased to 2.2 by adding 2.5 ml of hydrochloric acid. Next, 45 minutes of independent boiling time were spent on each of the fruits. After that, a filter study using filter paper was used to separate the peels from the extracts. To reduce the amount of heat related pectin degradation, the cake was washed with 250 ml of boiling water and the combined filtrate was allowed to cool to 25°C. 100 ml of the extracted pectin were combined with 200 ml of 95% ethanol while being thoroughly stirred, and the mixture was allowed to stand for 30 minutes to allow the pectin to float to the top. This precipitated the extracted pectin. After that, the flocculants of gelatinous pectin were skimmed out. After being cleaned in 200 ml of ethanol, the extracted pectin was pressed on a nylon towel to get rid of any remaining HCl and universal salt. The resultant pectin was measured, finely chopped, and air dried. The dried pectin was then further crushed with a pestle and mortar into smaller bits, and it was weighed with a digital weighing scale. After determining the initial pectin output from wet peels, both wet and dry weight calculations were made (Bagde et al., 2017).

Equivalent Weight Determination

1 g pattern of pectin and 10 ml of ethanol have been brought to a conical flask with a potential of 250 ml. A few drops of phenol pink indicator, 2 g of sodium chloride, and 100 ml of distilled water were then added to the mixture. Before step by step titrating the answer with 0.1 M NaOH to a purple colour at the endpoint (to keep away from manageable de-esterification), care used to be taken to make certain that all of the pectin had dissolved and that no clumping had fashioned at the aspects of the flask (Bagde et al., 2017).

Results and Discussion

Table two shows that ethanol and warm acetone have been used to extract *Citrus. Limon* peel imperative oil. Numerous phytochemicals can be located in this oil (hot) acetone and alcohol extract. Hot alcohol extract reported flavonoids, whereas hot acetone extract did not.

Table1

Qualitative Investigation of the Phytochemical Constituents in Citrus. Limon peel-

derived Essential Oil

Phytochemicals	Inference of Extracts	
	1	2
Flavonoids	-	+
Phenols	+	+
Terpenoids	+	-
Saponins	+	+
Alkaloids	+	-

Keys: Extract 1: Hot Acetone; Extract 2: Hot Ethanol. + Present, - Absent

The essential oil extract of lemon peel contained the phytochemicals. In the acetone extract of lemon peels, phenols, terpenoids, saponins, and alkaloids were discovered, while the ethanol extract of lemon peels contained flavonoids, phenols, and saponins. The ethanol extract's phytochemical composition of the flavonoids, saponins and alkanoids was similar to that reported John, S. et al., by 2017), however cardiac glycosides, diterpene, phytosterols were not found but tannin, glycosides, carbohydrate, proteins were not found were similar to reported by John et al., 2017. Saponins, Phenols and alkaloids were found in acetone extract but saponins and phenols are similar as reported by John, S. et al.,, 2017. saponins, phenols and flavonoids were found in ethnol extract and alkaloids, saponins, and phenols were found in acetone extractas reported by Lawal et al., 2013 in *C. sinensis* peel extract.

The *Fusarium* was inoculated in Petridis and sprayed essential oil over the Petridis. One Petridis was free from essential oil. The essential oil free Petridis was observed spreading fungus with multiplication but the growth of fungus was stopped in Petridis which was sprayed with essential oil after three weeks. Pinontoan et al., 2019 reported that essential oil extract of Lemon peel have equal effectiveness against both *Trichophyton rubrum* and *Fusarium*.

Figure1 (a)

Petridis with Growth of Fungus is Stopped due to Antifungal Activity of Essential Oil Acetone and Alcohol Extract



Figure 1 (b)

Petridis with Fungus Growing

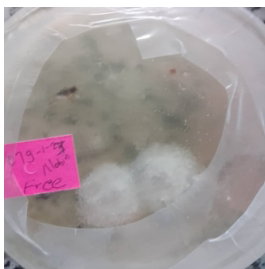


Table 2

Titration Pectin Mixture vs NaOH

S.N.	volume of pectin mixture	volume of 0.1M NaOH	total volume of 0.1M NaOH	calculation of equivalent weight
1	20 ml	1ml	5ml	$\text{Equivalent weight} = \frac{\text{weight of pectin} \times 100}{\text{volume of alkali} \times \text{molarity of NaOH}}$ weight of pectin = 1g, volume of NaOH = 5ml, Molarity of NaOH = 0.1M $\frac{1 \times 100}{5 \times 0.1} = 200$
2	20 ml	1ml		
3	20ml	1ml		
4	20ml	1ml		

Equivalent weight of pectin was calculated 200 g which was similar as reported by Bagde et al., 2017.

Conclusion

It is found that lemon peel has a big application in medicinal and pharmacological benefits. Pinontoan et al., 2019 reported that essential oil extract of Lemon peel have equivalent effectiveness against both *Trichophyton rubrum* and *Fusarium*. The critical oil extract from lemon peel contained the phytochemicals. The acetone extract of lemon peels contained extra phenols, terpenoids, saponins, and alkaloids in evaluation to the ethanol extract, which additionally contained flavonoids, phenols, and saponins. The equivalent weight of pectin was to be calculated as 200g.

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Ways for the Prosperity of Farmers in Western Hills and Terai, Nepal

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Abstract

The Institute of Agriculture and Animal Science (IAAS) under Tribhuvan University (TU) has launched the internship programme for their final semester students studying under-graduate level since 2014/15 in its all constituent and affiliated campuses. About 106 UPA mini-theses accomplished by 221 B.Sc. Ag. graduates from the Prithu Technical College (PTC) libraries were systematically arranged and categorized in chronological order based on the disciplinary subjects and thematic areas, and the technologies have been recommended to scale-out for the prosperity of the farmers in the western Terai and mid-hill agro-ecology of Lumbini and adjoining provinces in Nepal. The review revealed that the researches at PTC were concentrated majorly on major food grain crops with five major themes viz. varietal evaluation, crop management, soil nutrient, weed and insect pest management. The review further revealed that the adequate number of researches were in the vegetable crops specially in production packages and value-chain analysis followed by the control of insect pests and diseases both in on-farm and storage structures, suggesting to follow the integrated pest management (IPM) approach. Varietal testing in major field and vegetable crops, and economic survey of chamomile, marigold, honeybees, broiler chicken, cardamom and ginger and oyster mushroom cultivation practices are the newly defined arena to be adopted for harnessing the prosperity of the farmers of the western hills and Terai region in Nepal and its adjoining congenial agro-climatic environment. Future collaboration with the various agriculture related national and international organizations as adopted by PTC on these recent years has to be continued and strengthened further to extrapolate the UPA research innovations obtained from the graduate student's mini-thesis works.

Keywords: Innovative Agriculture Technologies, Prithu Technical College, Under-graduate Practicum Assessment

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Introduction

The United Nations (UN) listed the 17 Sustainable Development Goals (SDGs) in 2015 (UN, 2015) in which the higher education is announced more important by the name the SDG Goal No. 4, as defined “equal access to higher education as part of the promotion of life learning opportunities for all”. As a UN member country, Nepal has also adopted and incorporated these goals in her national development agendas. For example, the country has developed a framework “Nepal National Framework of SDG 4: Education 2030” to achieve the targets of SDG-4 (MoES & T, 2019). Similarly, National Education Policy (2019) has also been implemented to improve the access of quality education and for increasing the relevance of higher education to national priorities and sustainable development of the country. The policy further encourages expanding higher education across the country focusing to technical education (MoES & T, 2019a).

Agriculture as a technical discipline, deals with food security and environmental problems and contribute to the solution as well. Poverty alleviation, food security and climate change are the national and global concerns and seen them as the problem of ‘global commons’ (World Bank, 1999) wherein, agriculture academia, research and extension are suggested as a solution measure amongst the various measures to achieve this target (ABPSD, 2022). Graduates from Nepalese universities must engage among each other and approach to wider society for promoting the economic development, social welfare and environmental stewardship of the country.

Prithu Technical College (PTC) is one of the agricultural colleges under IAAS, TU, established as a private college in Lamahi Municipality Ward-3, Bangaun, Deukhuri Dang, Nepal in the year 2013 AD (2070 BS) for providing the theory and practical courses of the Bachelor of Science in Agriculture (B.Sc. Ag). The education and training landscape at PTC as evolved from the beginning is emphasizing the vocational and technical skills to the marginal and talented students willing to study B.Sc. Ag. in specific and to boost the Nepalese economy in general. The graduates from this college have designed and launched innovative Under-graduate Practicum Assessment (UPA) researches by using their ingenuity and determination as a minimum requirement for the partial fulfillment of the B.Sc. Ag. degree. Since, PTC has already produced about 220 high-sounding B.Sc. Ag. graduates and able to enroll and pass out about 100 M.Sc. Ag. students from different institutions nationally and internationally its popularity is increasing amongst other private colleges as a pioneer organization in the field of strong research base with high-sounding academic quality.

This compilation study of all under- graduate thesis works of UPA research in one place as a review article would be a great job to get a bird’s eyes view in disciplinary researches, which do not only reduce the costs of further research from

repeated experimentations, but also save time of researchers and institutions, help to maintain food and nutritional security after boosting the crop and animal productivity, to direct the command of future research needs of the under-graduate's programme, and to strengthen the academic and research bases of PTC.

Materials and Methods

As a minimum pre-requisite of the under-graduate courses, the IAAS has developed the academic course curricula with the inclusion of Under-graduate Practicum Assessment (UPA) thesis to the B.Sc. Ag. 8th semester students with 3 credit courses (IAAS Bulletin, 2009), which now has been named as Research, Practice and Seminar (RPS) with 1+3 credit hours (IAAS Bulletin, 2019). To be acquainted with the various disciplinary and system research works of the Prithu Technical College (PTC) and to recommend the innovative research technologies of PTC, the Under-graduate Practicum Assessment (UPA) thesis of PTC under IAAS, Tribhuvan University (TU) being conducted over last 5 years (2018-2022) were critically reviewed. Almost all those mini-theses kept at Prithu Technical Campus Library were collected and documented with their respective topics. We prepared the inventory of the theses and presented in tabular forms and dragged the research outputs according to disciplinary subjects and thematic areas in capsulated form. Yield and economic potentialities, and the modern production technologies for getting the researchable yields of the of different agronomic and horticultural crops, and animal commodities being grown mostly around the Lamahi, Dang and adjoining districts of Lumbini provinces were identified and key research gaps and future research priorities have been recommendation. Mean comparisons on review data were calculated through Microsoft Excel and qualitative traits were analyzed in percentage as per need.

Results and Discussion

As the basic pre-requisites of the B.Sc. Ag. course, the PTC has also been producing about 106 mini-thesis based on on-station and on-farm researches for last 5 years (2018-2022) on different agronomic and horticultural crops, apiary and livestock animals mainly in poultry birds and fishery. The two-way matrices of years of passed out students and major departments offering min-thesis has been documented in Table 1 highlighting the major research focus was in Agronomy, Horticulture, Plant Pathology, Agri-Economics and Plant Breeding. It was also overlooked that the number of students in choosing subject disciplines was mainly based on the available faculties enrolled in different departments over different time-frame in the college

Table 1

Two-way Matrices on Students Passed out in Different Batches/ Years with their Multi-disciplinary UPA Research Subjects from IAAS, PTC, Dang during Last 5 Years (2018-2022)

SN	UPA mini-thesis Departments	Years and number of min-theses produced					Total
		2018	2019	2020	2021	2022	
1	Agronomy	6 (10)	3(6)	3(6)	4 (11)	7 (17)	23 (50)
2	Plant Breeding	1 (1)	2 (5)	3 (8)	3 (9)	3 (8)	12 (31)
3	A n i m a l Science				1 (2)		1 (2)
5	A g r i - Economics	5 (5)	5 (6)	6 (9)	2 (5)	4 (8)	22 (33)
6	Agri-Extension	1 (1)					1 (1)
8	Entomology	1 (2)	2 (4)	3 (6)	1 (2)	1 (2)	8 (16)
9	Horticulture	2 (4)	5 (13)	5 (11)	4 (11)	4 (9)	20 (48)
10	P l a n t Pathology	4 (4)	6 (13)	2 (4)	3 (7)	2 (6)	17 (34)
11	Soil Science and Agri-Eng.			1 (3)	1 (3)		2 (6)
Total		20 (27)	23 (47)	23 (47)	19 (50)	21 (50)	106 (221)

Note: Figures in parenthesis denotes the number of students writing UPA thesis and passed in the particular batches

As per the tracer study recorded in PTC, it has also been reported that about 46 PTC alumni have gone to abroad for higher study, about 62 have completed their M Sc Ag study in Nepalese universities, about 11 have gone to Israel for ‘earn and learn programme’ and about 50 are working in different agriculture related offices in Nepal (PTC profile, 2022).

Major Research Innovations in Various Thematic Areas of Agronomy and Plant Breeding

In total of 81 students doing 35 UPA research in Agronomy and Plant Breeding, 39 students have published 16 UPA thesis in maize, followed by 13 students with 6 UPA research in wheat, 10 students with 5 theses in rice and 19 students with 8 theses in other field crops (Table 2). Varietal, fertilizer and weed management and other cultural practices like tillage and priming were the major thematic areas of agronomic research, while study of heritability characters and varietal screening of maize and wheat were the major research themes adopted by PTC alumni. The details of the findings as per crop and thematic areas have been expressed in Table 3-4.

Table 2

Two-way Matrices on Number of UPA Thesis in Various Thematic Areas under Agronomy and Plant Breeding subjects at PTC, IAAS/TU, Lamahi, Dang during 2018-2022

SN	Major thematic areas of research					Total
	Crops	Varietal management	Fertilizer management	Weed management	Tillage and other practices	
1	Rice	1 (3)	2 (4)		2 (3)	5 (10)
2	Maize	8 (20)	3 (7)	2 (5)	3 (7)	16 (39)
3	Wheat	2 (5)	3 (6)		1(2)	6 (13)
4	Others	2 (4)	4 (10)	1 (2)	1 (3)	8 (19)
	Total	13 (32)	12 (27)	3 (7)	7 (15)	35 (81)

Note: The figures in the parenthesis denotes the number of students accomplished the thesis in respective themes

Table 3

Major Research Innovations of the UPA Theses in Varietal Management of Agronomic Crops at PTC during 2018-2022

Varietal development Innovations	References
Rice -Early transplanting date on June/July governed 30.75% higher yield while with hybrid cultivar Arize-6444 resulted about 80.92% over local cultivar (Sarju-52) in Lamahi, Dang. Early transplanting date required a greater number of days to maturity, thereby accumulating higher GDD than transplanted conditions converting the yield data to light and temperature relation. At Tulsipur, Dang, US-321 hybrid variety of rice was cultivated most and was found economical.	Bhandari, 2019; Oli, 2018
Wheat - Gautam variety recorded higher B:C ratio, yield attributes like length of spike, no of grains spike ⁻¹ and 1000 grain weight at Lamahi. Amongst the three different wheat varieties tested (Vijay, Borlaug 2020 and Bhrikuti) in Lamahi, Bijay showed better result on plant height. Borlaug 2020 performed the highest grain yield (4.21t/ha) and other yield attributes. To assess the heat tolerance in wheat genotypes next study stipulated that Zinc Wheat-1 &2, Borlaug 2020 and Bhrikuti were found high yielding genotypes under stress condition, while under normal condition, Aditya was found to be high yielding. Heat stress tolerant was found susceptible in WK-3165 cultivar. After studying the effect of peg- induced stress on germination of bread wheat genotypes, it was found that germination index and germination% were better in BL-4341 than Gautam.	Timilsena, 2018; Adhikari & DC, 2022; Bhatta et al., 2022; Poudel and Paudel, 2022; Maharjan et al., 2022

<p>Maize-Productivity of RH-2 showed significantly higher yield (6.19 ton/ha), higher B:C ratio (1:7.2), cob diameter (13.60 cm) and number of kernel rows cob⁻¹ (13.35). The next study exhibited that variety 10V10 showed significantly higher net return (NRs. 174066 thousand ha⁻¹) and B:C ratio (1.91) accompanied by superiority in yield attributes like cob length (16.25) and number of grains row⁻¹ (32.35). In another study, the highest plant height (210.43 cm), longest cob length (16.25 cm), maximum diameter of cob (4.27 cm), highest number of kernels row⁻¹, the highest 1000-grain weight (314 g), and maximum harvest index (44%) were observed in RML95/RML96 hybrid maize.</p> <p>High sense of heritability was found for 50% tasseling, ear height, tassel branch, 50% silking, tassel length, grain yield and no. of kernels, whereas low sense of heritability was found for traits: stem diameter, length, breadth, 1000 seed weight, ASI and cob length. Study on heterosis of maize genotypes in Bangaun, Dang resulted that RH-10 hybrid recorded commercial heterosis on grain yield over Rajkumar followed by RH-6 and RML86/RML. At the river basin of Karnali maize hybrid KML-5(A)*KYM -33 was found promising one followed by KWM-92*KWH-93, KML-4(A)*KYM-33 and least of KML-9(A)*RML-4. The multi-national performance of maize hybrids resulted that 9, 10v10 hybrid was found superior and yielded 11, 10.71 and 10.62 ton/ha, respectively than Rampur and Khumal hybrids which yielded 7.54 and 9.54 ton/ha in terms of grain yield. The next varietal performance trial at Lamahi Dang resulted that RML-98, RML-4, RL-107 was superior wherein the grain yield was 11.26, 9.92 and 10.22 ton/ha than the standard check RH-10 (9.24 ton/ha) and RH-6 (8.23 ton/ha). The evaluation and variability of quality protein maize resulted that Rampur-S13FQ-02, Rampur-S03FQ-02, Rampur-S13FQ010 and Rampur S13FQ-08 yielded 4.32, 3.97, 3.89, 3.63 ton/ha and was found superior in yield than Poshilo Makai-2 yield (2.66 t/ha).</p>	<p>Paudel & Bhatta, 2018; Adhikari & Bhandari, 2020; Raut et al., 2020; Rai, 2018; Upreti and Acharya, 2019; Gyawali et al., 2020; Acharya and Parajuli, 2020; Shrestha et al., 2021; Khanal et al., 2021; Niraula et al., 2021</p>
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Table 4

Major Research Innovations of the UPA Theses in Different Thematic Areas of Agronomic Crops at PTC during 2018-2022

Crops, Major Thematic Research Areas and their Findings	References
1. Crop management	
Rice -Treatments with 29 days old seedlings with 4 seedlings/hill produced the highest grain yield (3.9t/ha), biomass yield (9.9t/ha), effective tillers m ⁻² (285) and number of tillers. The rice grown on June 20 th with 120 kg N/ha produced the maximum gross return, net return and B:C ratio.	Pokharel & Singh, 2018, Gautam & Kunwar, 2018

<p>Wheat-Zero tillage showed significantly higher yield than conventional tillage.</p>	<p>Bartaula & Panthi, 2019</p>
<p>Maize-The longest plant, highest cob weight, maximum diameter of cob, highest number of kernels cob⁻¹, maximum number of kernel rows cob⁻¹, the highest 1000-grain weight, harvest index and stover yield was observed in the spacing of 75cm x 25 cm. In another study in maize, inter row spacing of 60 x 25 cm produced maximum yield (3.8 tha⁻¹), cob length (15.5 cm), cob circumference (12.6 cm), 1000 grain weight (290.3 g), stover yield (7.0 tha⁻¹) and highest net return (NRs 66.5 thousand ha⁻¹) and B:C ratio (2.0). Research on effect of Salicylic acid and irrigation on response of maize revealed that 450 mllit⁻¹ recorded highest 1000-grain weight (306.91 g). Irrigation provided at knee high, tasseling and grain filling recorded the highest number of rows cob⁻¹ (16.3), grain yield (6.18ton ha⁻¹) which remained statistically as par with four irrigations.</p> <p>Field results from six different intercropping treatments of maize and soybean namely; sole maize, 1M:1S, 1M:2S, 1M:3S, 1M:4S and sole soybean reveled that maximum grain yield of maize (2.63 ton ha⁻¹) with the highest stover yield (5.63 ton ha⁻¹), biological yield (8.27 ton ha⁻¹) and harvest index (31.83%) was recorded from treatment combination in 1M:2S, while the maximum number of grains cob⁻¹ was obtained in treatment ratio 1M:3S. In contrast, the maximum pod yield of soybean (2.73 tonha⁻¹) and stalk yield (4.70 ton ha⁻¹). was recorded with 1M:4Swhile, the maximum biological yield (7.0 ton ha⁻¹)and harvest index (38.57%)was recorded in sole soybean.</p>	<p>Raut et al., 2019; Koirala et al., 2019; Dhami et al., 2021; Adhikari & Karki, 2018</p>
<p>2. Soil nutrient management</p>	
<p>Rice-The grain yield of rice increased by 23.97% for NE- Rice in comparison with FFP and yield attributing characters like effective tillers m⁻²(354.50), panicle length (26.31 cm), panicle weight (81.50 g), filled grains panicle⁻¹ (389.50) and fertility %(87.56).</p>	<p>Mahara & Acharya, 2019</p>
<p>Wheat-Recommended dose of NPK fertilizers::120:50:50 kg NPK/ ha resulted higher grain yield, biological yield and grains spike⁻¹.The fertilizer dose 125:50:50 kg NPK/ha produced the highest gross return (NRs.113.9 thousand ha⁻¹) by the expense of (NRs.64.2 thousand ha⁻¹), producing B:C ratio of 1.8. Similarly, in another research, fertilizer dose of 120:60:60kg NPK/ha produced gross return (NRs.92.90 thousands ha⁻¹) by the expense of (NRs.75.4 thousands ha⁻¹) and B:C ratio 1.23.</p>	<p>Bhatta et al., 2022</p>

<p>Maize-Fertilizer dose of 180:60:40 kg NPK ha⁻¹ showed the highest plant height and the longest cob length (18.31 cm). In another study, maximum grain yield (10.77 t ha⁻¹), cob length (16.33 cm), no of rows cob⁻¹ (14.97), cob diameter (4.54), 1000-grain weight (276.77g), stover yield (12.91ton ha⁻¹), biological yield (23.00ton ha⁻¹), harvest index (43.80), gross return (NRs. 208.94 thousand ha⁻¹), net return (NRs. 104.488 thousand ha⁻¹) and B:C ratio (2.001) with 220 kg N/ha. Judicious use of organic and inorganic fertilizer on INM practice, 50% nitrogen with chemical fertilizer and 50% nitrogen with vermi-compost showed the highest grain yield (6.84ton ha⁻¹), cob circumference (16.67 cm), and number of rows cob⁻¹ (16.9) which was par with the 100% nitrogen through chemical fertilizer.)</p>	<p>Paudel & Bhatta, 2018; Pandit & Khadka, 2021; Adhikari & Bhandari, 2020; Pandit & Khadka, 2021</p>
<p>3. Weed management</p>	
<p>Maize- The highest weed control efficiency at 60 DAS was recorded by pre- emergence application of Pendimethalin @ 2-3 kg a. i./ha. Kharif maize produced maximum plant height, highest cob circumference, longest cob length, number of rows per cob, number of grains per cob and grain yield with Laudis (Mesotrion) treated plot which was statistically at par with weed free plot. Laudis treated plot also recorded the highest net return (NRs 68.2 thousand ha⁻¹) and B:C ratio (1.73).</p>	<p>Karki et al., 2021; Thani & Khanal, 2022</p>

Major Research Innovations in Various Thematic Areas of Horticulture

About 53 students have accomplished the mini-thesis research in various horticultural crops mainly in varietal and fertilizer management theme and other different growth hormones (Table 5). The maximum research was concentrated to solanaceous vegetables, but few students have studied on other vegetables like cole crops, lady's finger, root vegetables and coriander, and some fruits like citrus and banana and even in marigold flower too. The major UPA research innovations as per thematic areas of horticultural crops at PTC during 2018-2022 is given in Table 6.

Table 5

Two- way Matrices on Number of UPA Thesis in Various Thematic Areas under Horticulture Subject at PTC, IAAS/TU, Lamahi, Dang during 2018-2022

SN	Major thematic areas of research				Total
	Crops	V a r i e t a l management	Fertilizer management	O t h e r specials	
Major Vegetables					
1	Cole crops		2 (3)		2 (3)
2	Root vegetables		1 (3)		1 (3)
4	Solanaceous		3 (8)	6(13)	9 (21)
5	Coriander	1 (3)			1 (3)
6	Malvaceous	1 (2)		1(3)	2 (5)
	Total	2 (5)	6 (14)	7(16)	15(35)
Major Fruits					
3	Citrus			1(2)	1 (2)
4	Banana			1(3)	1 (3)
	Total			1(5)	1 (5)
Major flower					
1	Marigold		1 (2)	2 (6)	3 (8)
Grand total		2 (5)	7 (16)	12 (32)	21 (53)

Table 6

Major UPA Research Innovations as Per Thematic Areas of Horticultural Crops at PTC during 2018-2022

Crops, Major Research Thematic Areas and their Findings	References
1. Varietal management	
Vegetables- The leaf area, branch length, number of male and female flowers could be important selection criteria in evaluation and estimation of genetic parameters of hybrid cucumber in Lamahi, Dang. Similarly, the Arka Anamika cultivar of Brinjal was the best in the vegetative growth mostly on plant height (81.7 cm), leaf number (32.04) and branches (23.17), while Bhindi-10 was the best in terms of yield and yield attributing characters like fruit length(11.43 cm), fruit diameter (1.49 cm), fruit weight (15.53 g) and yield plant ⁻¹ (522.26 g).In case of coriander cultivars, Kalami 5, Evergreen and Komal was found to have better performance under Lamahi Dang condition.	Khadka et al., 2022; Regmi & Regmi, 2018; Bhattarai et al., 2020

2. Crop management	
<p>Vegetables- The spacing of 50 x 30 cm in brinjal showed significant effect on yield and yield attributing characters like fruit length (11.43 cm), fruit diameter (1.61 cm), fruit weight (15.53 g) and yield per plant (522.26 g). Similarly, the highest number of fruits, fresh and dry fruit yield (5.48 and 1.34 g), length of fruit (11.34 cm) and fruit diameter of chilli was recorded while grown under black double thickness plastic. Similar research on mulching of okra showed that plastic mulch of 20μ was the best in terms of vegetative growth and phenological observation like plant height, number of leaves at 60DAS, and other yield attributing characters like fruit length, fruit weight and yield per plot (5.4 tons/ ha). Among the priming methods tested in okra, the highest plant height was recorded in hydropriming, greater number of flower (7.67) and the lowest number of days to flowering (40.33) was obtained when there was priming with 50% sulphuric acid. Similarly, yield per plot was high with hot water priming (595.02 g). Among different dose of Auxin and Gibberellin applied on tomato (Gaurav 555) under greenhouse condition, the highest number of flowers and fruits cluster⁻¹ and the highest fruit weight was recorded in spraying 10 ppm IAA+ 20 ppm GA3. On similar research performed in field condition in chilli at Lamahi, Dang, the application of GA3 100 ppm enhanced the growth where as low concentration of NAA in range of 30 to 60 ppm enhanced the yield attributing characters of chilli. In case of Broccoli (Greenmagic), the highest result in yield (7.18 ton/ ha) and curd weight (167g) was found with 75 ppm GA3 followed by 50 ppm.</p>	<p>Regmi & Regmi, 2018; Neupane, 2020; Panthi & Thapa, 2022; Khatri, 2021; Giri & Paudel, 2021; Khanal et al., 2021; Neupane & Pandey, 2022</p>

<p>3. Soil nutrient management</p>	
<p>Vegetables-On different phosphorous level applied on chilly cultivar NS-1701, 90 kg P₂O₅/ha was the best in plant height (60.25 cm), number of primary branches (9.60), days to 50% flowering (44 days), yield per plant (123.20 g) and yield (9.15 ton/ha). Phosphorous level of 120 kg/ha was superior in terms of fresh weight of fruit with lengthy fruits. In comparing three different organic manure (FYM, Poultry manure and Mustard cake), maximum plant height, number of leaves at 65 days, leaf length, root diameter, root weight, shoot weight, total weight, root yield, shoot yield, total yield, dry matter and B:C ratio of radish was recorded maximum with the mustard cake. Integrated nutrient management of early season cauliflower with FYM, Poultry manure and Vermicompost has found the improved soil physical and chemical properties, enhance nutrient availability of plants resulting in better growth and yield. While applying different level of potassium on ‘Cardinal’ variety of potato, potassium 60 kg/ha showed significantly higher yield (2.23 ton/ha) and better economics of production.</p>	<p>Adhikari et al., 2019; Belbase et al., 2019; Neupane, 2020; Ghimire et al., 2019</p>
<p>4. Post-harvest management</p>	
<p>Vegetables-To maintain post-harvest quality of tomato, different concentration of Ethephon was tested and resulted that the highest ripening percentage was registered in 750 ppm ethephon solution. Low concentration of ethephon has higher TA than high concentration of ethephon. Average marketable fruit percentage was higher in low concentration of ethephon. Among different post-harvest treatments on self-life and quality of tomato, application of GA3 (0.3%) has the potential to control decay and prolong the self-life at ambient condition.</p>	<p>Rawat & Oli, 2018; Karki et al., 2022</p>

Fruits -The quality and self-life of mandarine orange was judged by applying Paraffin wax, Mustard oil, <i>Aloe vera</i> and Turmeric and result revealed that Paraffin wax 75% can be technically suggested for keeping orange fresh and edible for longer time.	D. C. & S i n g h , 2019
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Major Research Innovations in Different Thematic Areas of Soil Science and Plant Protection

About 58 students have accomplished the mini-thesis research in soil science (2 mini-thesis with 6 students) and plant protection (18 min-thesis by 32 UPA students). About 20 students have developed mini-theses on mushroom cultivation (Table 7). The major UPA research innovations on various crop commodities of agronomical and horticultural crops at PTC during 2018-2022 is given in Table 8.

Table 7

Two-way Matrices on Number of UPA Thesis in Various Thematic Areas under Soil Science and Plant Protection subjects at PTC, IAAS/TU, Lamahi, Dang during 2018-2022

SN	Major thematic subjects of research					Total
	Crops	S o i l Science	I n s e c t management	D i s e a s e management	O t h e r specials (mushroom)	
Major agronomic crops						
1	Cereals	2 (6)	4 (8)	8 (13)		14 (27)
2	Legumes		2 (3)	1 (2)		3 (5)
3	Oilseeds		1 (3)			1 (3)
Major horticultural crops						
1	Vegetables			2(3)		2 (3)
3	Mushroom				7 (18)	7 (18)
4	Honeybees				1 (2)	1 (2)
	Total	2 (6)	7 (14)	11(18)	8 (20)	28 (58)

Table 8

Major Findings of the UPA Research Innovations as Per Thematic Areas in Plant Protection Themes of Various Agronomic and Horticultural Crops and Mushroom Cultivation at PTC during 2018-2022

Crops, major innovative plant protection researches at PTC, Lamahi, Dang	References
<p>Rice- From a survey study in Chitwan, it was noticed that rice weevils and rice moth were the major insect pest in cereals and bruchids in legumes. Hybrid rice genotypes screened for rice blast disease in Lamahi resulted the significantly low AUDPC value in Sabitri cultivar (36.46) followed by Hardinath-1 (39.93). The similar research resulted that fungicide Tricyclozole 75% WP was found to be most effective to least leaf blast severity (27.85 %), least incidence (35.5 %), least mean AUDPC (64.64 %) and high grain yield (3.93ton ha⁻¹). Similar research for screening rice genotypes against brown spot disease in Dang showed high mean AUDPC value in Basmati (260.65), followed by Radha-13 (172.80), and the lowest in Kathe Jhinuwa (88.51). The lowest severity was also recorded in Kathe Jhinuwa (11.33) which was at par with Radha 4 (11.11).</p>	<p>Shrestha et al., 2020; Bohora, 2018; Moktan, 2018, Dhungana & Puri, 2019</p>
<p>Maize- To control bacterial stalk rot of maize, the highest economic yield was obtained by the application of Agricin + Surya, and seemed to be the best to control bacterial stalk rot. Similarly, in the next study screened for 20 maize genotypes against banded leaf and sheath blight in Bangaun, Dang, RampurS03F08, HG-AB, Rampur 2, Rampur Composite and Rampur-43 were recorded for the lowest AUDPC value with moderately resistant reaction against this disease with significantly higher grain yield. To control the same disease, the application of <i>Trichoderma viridae</i> was recorded for the lowest AUDPC value as bio-control and Mancozeb as a chemical control.</p> <p>The next study to evaluate the efficacy of different <i>Trichoderma</i> isolates from different geographical region of Nepal reported that the mycelium growth inhibition percentage was higher in <i>Trichoderma</i> in Banke followed by <i>Trichoderma</i> in Dang and <i>Trichoderma</i> in Chitwan which showed that <i>Trichoderma</i> in Banke had more potential effect to check the banded leaf and sheath blight pathogen. Similar research was also performed for screening of maize genotype against Southern Leaf Blight during summer at Lamahi using 20 maize genotypes and results revealed that two maize genotypes RampurSO3FO8 (yield 1.8 ton/ha, mean AUDPC 65), Across- 0091 (yield 1.65 ton/ha, mean AUDPC 67.08) were found significantly superior in terms of disease resistant and grain yield both.</p>	<p>Karki, 2018; Rijal, 2018; Pangeni et al., 2019; Yadav & Chaudhary, 2020; Shah & Pande, 2019</p>
<p>Vegetables- A trial with different fungicides tested against late blight of potato in Dang, Sectin was found to be more effective in controlling disease with least disease severity (18.7 %), least disease incidence (5.33%), least mean AUDPC (85.56) and high tuber yield (9.49 kg/plot) over Relaxyl, Antracol, Mancozeb, Metalayxl, Cerbendazim and control. While evaluating the five local cultivars of potato with two checks for their host resistant against late blight, Khumal Ujowal had recorded the significantly lowest disease incidence and severity.</p>	<p>Paudel, 2019; Pandit & Bhatta, 2019</p>

Fruits-In Chitwan, <i>Fusarium</i> wilt was the serious disease and pseudo stem borer was key pest damaging the banana.	Shrestha et al., 2020; Neupane, 2020
Mushroom cultivation packages	
A study on different substrates used for growing oyster mushroom, lentil straw was found most suitable followed by rice straw mixed with maize cob at Lamahi. The rice straw + banana leaves could also be reasonably used in mixture with rice bran supplement for better mushroom cultivation. On different method of substrate sterilization, the Bavistin and formaldehyde recorded the highest yield (1.86 kg/bed) of mushroom. Substrate sterilized neem extract+ steam also produced good yield with low contamination. In another research, steam sterilization was found to be most effective sterilization technique. Among different doses of gibberellic acid applied on oyster mushroom cultivation, the highest yield (2851.5 g ball ⁻¹), number of fruiting body (47), the effective primordia (11) and better stipe length (5.123 cm) was found in 10 ppm of GA3 application. Similarly, it was noted that the largest stipe length (6.49 cm) and stipe diameter (1.57 cm) was found on rice bran and lime, respectively. The highest mushroom yield and biological efficiency were recorded when corn flour followed by chickpea powder were added as the catalyst.	Pokharel et al., 2019 Neupane et al., 2021; Aryal & Kandel, 2020; Gautam & Devkota, 2021 Parajuli & Pokharel, 2021; Pandey et al., 2022

Major Research Innovations in Different Thematic Areas of Social Sciences

About 37 students have accomplished the mini-thesis research in Agri-Eco (22 mini-thesis with 33 students) and Agri-Extension (3 mini-thesis by 4 UPA students). A student produced mini-theses in food security status of Pyuthan district, while 3 mini-theses by 4 students have developed in Agri-Extension, suggesting that the dissemination of technology is lagging over there at PTC (Table 9). The major UPA research innovations on various socio-economic status at PTC during 2018-2022 is given in Table 10.

Table 9

Two- way Matrices on Number of UPA Thesis in Various Thematic Areas under Social Science Subjects at IAAS PTC, Lamahi, Dang during 2018-2022

SN	Major thematic subjects of research			Total
	Subjects	Production economics	Food security survey	
Agri-Economics				
1	Agronomic crops	4 (7)	1 (1)	5 (8)
2	Horticultural crops	9 (12)		9 (12)
3	Animals	6 (10)		6 (10)
4	Apiculture	1 (1)		1 (1)
5	Food security		1 (2)	1 (2)

	Total	20 (30)	2 (3)	22 (33)
Agri-Extension		Adoption measures	Socio-economic survey	
1	Agronomic crops	1 (1)	1 (1)	2 (2)
3	Animals		1 (2) Animal Nutrition	1 (2)
	Total	1 (1)	2 (3)	3 (4)

Table 10

Major Research Innovations on Economics of Agronomic and Horticultural Crops, Poultry and Fishes, Honey Bees and Food Security Status by the UPA Research Students of PTC during 2018-2022

Major socio-economic innovations in various crops and animal sciences	References
1. Agronomical Crops	
<p>Rice-A field survey study in Lamjug resulted higher B: C ratio (1.78) and found to be economical.</p> <p>Maize- The benefit: cost ratio (1.38) of small sized farm in growing maize in Lamahi was most beneficial than the bigger sized farm.</p> <p>Sugarcane- The survey in sugarcane accomplished in Nawalparasi has found a profitable business, wherein the Gross and Net Returns were NRs.270222.30 ha⁻¹ and NRs 102628.20 ha⁻¹, respectively.</p> <p>Cotton-Economic analysis on cotton exhibited that the higher B:C ratio (1.98) was most profitable in Dang district in which, the gross and net profit was found to be NRs.126729 ha⁻¹ and NRs.62889.45 ha⁻¹, respectively.</p>	<p>A d h i k a r i , 2018; Acharya et al., 2022; Bharati, 2018; Joshi, 2020</p>
2. Horticultural Crops	
<p>Vegetables: Socio-economic analysis on tomato in Lamahi Dang recorded the higher B:C ratio (3.70) and gross margin (NRs.27621.20 ha⁻¹) and found very much profitable. On the same way another research on tomato resulted that the higher B:C ratio (2.66) and average return was found to be NRs.83578.05 kattha⁻¹.</p> <p>Spices: The survey on ginger production in West-Rukum district resulted the higher gross return (NRs.35839 ropani⁻¹) and net return (NRs.20666.02 ropani⁻¹). Another survey on large cardamom in Bhojpur district exhibited the higher B:C ratio (3.75) as the most profitable enterprises in the survey area.</p> <p>Fruits: The survey on oranges in Syangja resulted the higher B:C ratio indicating that the business was found to be profitable. Survey on banana in Chitwan expressed the higher B:C ratio (1.52) and the average production cost NRs. 5211.65 kattha⁻¹.</p> <p>Chamomile-The survey on chamomile in Dang district noticed the higher B: C ratio (1.72) and total return (NRs.143407.40 katha⁻¹).</p>	<p>Basyal, 2018; Gyawali and Shah, 2022; Magar & K.R., 2019; Rai, 2020; Marasini, 2018; Rijal, 2019; Chaudhary, 2020</p>

3. Animal Science	
Broiler chicken- In Deukhuri valley, the B: C ratio (1.41) of poultry business was noticed to be profitable. The B:C ratio of different sized poultry in Dang is 1.11 for small sized farm, 1.243 for medium sized farm and 1.283 for large sized farm suggesting to increase the poultry population to be economical. In Chitwan the B:C ratio of broiler production for small, medium and large sized farms were 1.09, 1.20 and 1.27 and suggested to follow it in large scale.	Paudel, 2018; Neupane & Basnet, 2020; Dawadi, 2022
Fishes- The B: C ratio of fish farming was 2.47, 2.25 and 1.62 in Rupandehi, Kapilvastu and Dang districts, suggesting the most feasible and beneficial cultivation was in Rupandehi mainly due to the easy access of fish fingerlings and feed market over there.	Dhakal & Ghimire, 2022
Milk- At Lamahi, the marketing channel of dairy milk was analyzed and advocated that about 78% of 5047 tons produced milk was marked surplus, of which 89% to formal marketing, 3% to local channel and 97% to large processor. On the same way another survey was done on milk, wherein the highest gain was by processor (59.57%) followed by producer (40.6%) and by retailer (9.75%).	Kandel, 2019; Ojha et al., 2021
Honey bees- B: C ratio of <i>Apis mellifera</i> and <i>Apis cerena</i> was 1.88 and 3.71, respectively, recommend to increase the cultivation of <i>A. cerena</i> in Lumbini province.	Yogi, 2019
Food security status- Rural areas faced more food security problem than the urban areas of Pyuthan district suggesting to follow scientific crop production packages in the hilly districts of Nepal.	Paudel & Poudel, 2021

Conclusion

Though the UPA research conducted by the B Sc Ag students could not produce the technology recommendations, but it ways-out the major avenues to be prioritized for the future research. After rigorous review study, a range of innovative and relevant research programmes including the effective and efficient on-farm research and extension systems would be suggested as urgent need for substantially narrowing the yield gaps of various agronomic and horticultural crops and livestock animals and wider benefits to the farmers. In agronomic crops, biodiversity conservation, development of high yielding varieties and eco-region suited technology identification through agro-climatic modeling should be given emphasis. Variety identification, weed management and up-scaling the technologies is really needed for hilly uplands. Ecological zone classification and technology identification and hybrid seed production could be some priority areas for maize and wheat researches around Lamahi areas. Search for the cost- and energy-efficient production technology options is major challenge in vegetable production. Integrated nutrient management (INM) and integrated pest

management (IPM) approaches should be emphasized. Researches on precision agriculture like conservation agriculture and crop diversification for value addition as like in chamomile, honey bees, citrus and banana fruits, marigold and other new innovative areas were very rare at PTC, and hence, therefore would be very beneficial to start the UPA researches in this line. Further research funding would be granted to continue and flourish the advance and innovative UPA research works at PTC. The outputs of researches published in PTC journals should also be disseminated for the welfare of the mid-western terai and hill areas of Lumbini and adjacent Provinces.

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Site-Specific Fertilizer Management through Nutrient Expert: Productivity, Profitability and Efficiency of Wheat

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Abstract

A field experiment was conducted at Tikapur, Kailali located in Sudur-Pashim Province of Nepal from November 2021 to April 2022 to determine the effects of site-specific nutrient management practices on the yield, economics and resource use efficiency of wheat (cv: Vijay). Six fertilizer treatments were laid-out in a Randomized Complete Block Design. The treatment includes nitrogen omitted plot (N_0), blanket recommendation (BR), Nutrient Expert based-NPK (NE), Nutrient Expert based nitrogen recommendation and farmers fertilizer practice for other fertilizers (NE-N), leaf color chart-based nitrogen recommendation (LCC-N) and farmers fertilizer practice (FFP). NE produced the highest yield compared to BR and FFP. Grain yield between NE and LCC was similar ($p>0.05$). LCC-N produced the highest harvest index (0.46) and nitrogen use efficiency while they were the lowest in farmer-based practice. As with yield, NE produced higher gross revenue and benefit-cost ratio compared to farmers' practice. Similarly, the maximum nitrogen uptake by grain and straw and soil residual N was observed in NE treated plot. These results suggested that NE based NPK management could increase yields, NUE and farm profit. However, similar benefits could also be achieved using either LCC based N management with 25 to 40% less N compared to NE. So, the fertilizer recommendation using NE-Wheat model in combination with LCC (if available to farmers) for N management could be suggested to the farmers for successful wheat cultivation.

Keywords: fertilizer practices, nutrient expert, nitrogen use efficiency, site-specific nutrient management

Introduction

Wheat (*Triticumaestivum* L.) is a major food crop, and cultivated globally in 216 million ha with a total production of 765 million tons and an average yield of 3.5 t ha⁻¹, ranks second to maize and followed by rice (FAO, 2019; Houshyar et al., 2010). It is the third most important cereal crop in Nepal, both in terms of area and production (Bhatta et al., 2020). Although wheat is cultivated across all agro-ecological zones in Nepal, more than 60% wheat is grown in the Terai region (MoALD, 2017). Wheat accounts for approximately 7.14% of national AGDP (Pandey & Basnet, 2018). In Nepal, wheat is grown on 7,07,505 ha with a total production of 2,185,289 Mt and a yield of 3.09 t ha⁻¹. In Kailali district, wheat is cultivated in 35,950 ha with a total production of 140,545 Mt and a yield of 3.91 t ha⁻¹ (MoALD, 2020). However, domestic production is not sufficient to meet the national demand.

There are several factors that contribute to Nepal's low wheat yield, the most important of which is improper and insufficient fertilizer use (Amgain et al., 2022; Bhatta et al., 2020). This causes a large yield gap between a genetic potential of 11-13 t ha⁻¹ (Senapati & Semenov, 2020) and actual yield at farmer's field. Appropriate crop management technologies and approaches must be introduced to close the yield gaps and increase production (FAOSTAT, 2017). Among the nutrients, nitrogen is a key nutrient for increasing crop yield (Halitligil et al., 2000), but its utilization efficiency is very low as more than 50% of applied N is lost to the environment. According to a recent global review, the recovery rate of N fertilizer in wheat crop with current management practices is around 30% (Krupnik et al., 2004). It is reported that the cereal NUE is very low in Nepal compared to the SAARC countries (Singh et al., 2007). Nitrogen use efficiency in rice and wheat is low due to inefficient N application, including use of inappropriate rates, timing and application method (Krupnik et al., 2004). This necessitates to adopt improved methods which improve NUE and yields, while reduces environmental pollution. Some of the strategies include Site-Specific Nutrient Management (SSNM) through Nutrient Expert (NE) and real-time nitrogen management through Leaf Color Chart (LCC) (Jat & Gerard, 2014).

Previous studies show that adoption of NE based fertilizer application improved yields and fertilizer use efficiency because it helps to synchronize nutrient supply with the plant demand. In comparison to farmers' fertilizer practice (FFP), the NE-based wheat model increased yield and profitability through effective nitrogen use (Bhatta et al., 2020; Kunwar et al., 2019; Zhang et al., 2018). NE makes fertilizer recommendations based on yield responses and targeted agronomic efficiencies, as well as indigenous nutrient contributions. Similarly, the real-time N application guided by LCC enables farmers to apply fertilizer N in multiple doses to ensure a sufficient supply of N at critical growth stages; thus, improves yields and NUE. LCC, which is based on the

SSNM principle, also aids in nitrogen management in the soil by taking into account the inherent N-supplying capacity of different fields, ensuring consistent high yields with efficient use of N in both rice and wheat and increasing total productivity of the rice-wheat system and farmer profit (Shukla et al., 2004).

It has been reported that the efficiency of N use in wheat in South Asia could be improved by using fertilizer N management strategies that are responsive to temporal variations in which N demands and supply vary from field to field (Amgain et al., 2022; Singh et al. 2010). Improved synchrony of N supply with crop demand, N supply by soil, and applied N fertilizer at optimum dose appears to be more promising in wheat. The strategy combines preventive (applying fertilizer N as basal or at earlier fixed growth stages to prevent fertilizer N deficiency) and corrective (LCC guided) N management. The Terai region of Nepal is known as the “bread basket” of food crops, but farmers have been disappointed in recent days due to low profit margins. A preliminary survey conducted in Tikapur shows that the productivity of wheat is low due to lack of farmer awareness on the application of fertilizers including optimum rate, application time and methods, use of pesticides and miss-management of cultivation practices. In far-western region of Nepal, the research based on SSNM approaches including N management strategies in wheat is lacking. These problems are associated with lack of manpower and research funding, lack of credits and agricultural inputs, poor crop management practices and poor planning as compared to eastern region. Therefore, this study was conducted to determine Nutrient Expert-wheat recommendations to farmers’ fertilizer practices (FFP) comparing with the government recommendations (GR) for increasing NUE and thereby production and profitability and providing an alternative option for improved nutrient management for wheat farmers in Nepal’s diverse climatic regions.

Materials and Methods

Experimental Site, Soil and Weather

The experiment was conducted in the farmer’s fields of Tikapur (28°31’30”N, 81°07’15” E, 256 masl.) in Kailali district from November 2020-April 2021. The Rice was cultivated in experimental farm before conducting the experiment with wheat. The soil samples were collected from each field before start of the experiment (2020/2021) from 0–20 cm soil layer and analyzed. Soil texture was sandy loam, acidic in reaction (pH 6.53), low in organic matter (2.44%), total nitrogen (0.12%) and available potassium (162.40 kg ha⁻¹), but low in available phosphorus (29.49 kg ha⁻¹). The average temperature recorded during crop growth period (November 2020 to April 2021) ranged from 15 to 40° C with relative humidity of 10% to 62%.

Experimental Design and Treatment Detail

Wheat cultivar Vijay (BL-3063) was sown in November after harvesting of rice. For farmers' fields were selected randomly. There was slight variation in soil physical and chemical characters. Each selected farmer was interviewed with the NE-Wheat embedded questionnaire, with the majority of wheat production techniques and nutrient management procedures as prescribed in the question sets. The data was entered into the NE[®] Wheat model program. According to the Nutrient Expert tool, various nutrient dosages for nitrogen from Urea, phosphorus from Di-ammonium phosphate (DAP), and potassium from Muriate of Potash (MOP) were recommended for different farmers for different fields. The Nutrient-Expert Wheat model was used to predict wheat yield and profit at 14% moisture for all treatments, and the results were compared to the actual yield and profit to validate the model's estimation. Crop was grown following recommended agronomic package of practices wherein full dose of P and K through DAP, MOP applied basally (Reddy & Reddy, 2009).

Six fertilizer treatments (Table 1) were laid out in a randomized complete block design with 4 replications (a farmer field was considered as a replication), Treatments consisted N omission, blanket recommendation (BR), nutrient expert based NPK application (NE) and nutrient expert based N application (NE-N), real-time N following leaf color chart (LCC), and farmers fertilizer practice (FFP).

Table 1

Treatment Details Used in the Experiment

Treatment	Abbreviation	Treatment description	N: P ₂ O ₅ : K ₂ O: B kg ha ⁻¹
T1	N0	N-omission, P (SSP), K and micronutrient (boron) as per government recommended rates	0:50:50:2
T2	BR	Government recommended rates (blanket application); N, P, K and micronutrients as per recommendation	120: 50:50:2
T3	NE	Nutrient Expert-wheat model recommended dose	Farmers 1: 125: 63: 82 Farmers 2: 110: 50: 83 Farmers 3: 95: 44: 65 Farmers 4: 125: 60: 88

T4	NE-N	Nutrient Expert based Nitrogen and farmer's practice-based P and K; Nitrogen applied according to Nutrient Expert wheat and P &K on the basis of farmer's dose	Farmers 1: 125: 23: 0 Farmers 2: 110: 23: 0 Farmers 3: 95: 23: 0 Farmers 4: 125: 23: 15
T5	LCC	N based on LCC and P, K and boron as per recommendations	65.56:50:50:2
T6	FFP	Farmers' fertilizer practices; Applied as a farmers' dose.	

Estimation of Yield, Nitrogen Use Efficiency and Economic Return

Wheat was harvested in its physiological maturity and recorded yield and yield components. Effective tillers m⁻², filled grains spike⁻¹, thousand grain weight (g) were recorded from 10 randomly selected plants of each plot. Grain, straw and biological yields (t ha⁻¹), were recorded from the net plot of 12 m² area and grain yield was adjusted at 14% moisture. Harvest index and sterility percentages were then calculated following the standard formula. Grain and straw samples were prepared for laboratory analysis of N content. Based on N content of grain and straw, the total N uptake by grain and straw, and NUE was determined.

Economic analysis was done for each treatment using cost of cultivation and gross revenue. Cost of cultivation was estimated (NRs ha⁻¹) based on cost of different agriculture inputs viz. labor, fertilizer, compost, and other necessary materials. Gross returns (NRs ha⁻¹) were calculated from economic yield (grain + straw) of wheat on the basis of local market price available in Kailali district of Nepal for the year 2020/21. Benefit-Cost ratio was calculated by dividing gross returns with cost of cultivation.

Nitrogen Use Efficiency (NUE)

NUE is the ratio of nitrogen utilized by plant in biomass production to the N total n applied. Plant uptake of nitrogen from the soil and its efficient translocation for sustainable production of biomass varies with crops and management practices. According to Fageria et al. (1997) following formulae were used to estimate NUE:

Agronomic Nitrogen Use Efficiency (ANUE)

Agronomic nitrogen use efficiency is yield increase per unit of Nitrogen applied. It more closely reflects the impact of applied Nitrogen on the yield because it measures the amount of grain yield gained by the nitrogen input (Snyder and Bruulsema, 2007).

$$ANUE = \left(\frac{\text{Grain yield in fertilized plot (Kg ha}^{-1}\text{)} - \text{Grain yield in unfertilized plot (Kg ha}^{-1}\text{)}}{\text{Nutrient rate (Kg ha}^{-1}\text{)}} \right)$$

Apparent Nitrogen Recovery Efficiency (ANRE)

Apparent Nitrogen recovery efficiency is defined as the increase in crop uptake of Nitrogen in the aboveground parts of the plant in response to the application of Nitrogen. Like AE, it can be measured when a nutrient omission plot has been implemented.

$$ANRE = \left(\frac{\text{TNU in fertilized plot (Kg ha}^{-1}\text{)} - \text{TNU in unfertilized plot (Kg ha}^{-1}\text{)}}{\text{Nutrient applied in fertilized plot (Kg ha}^{-1}\text{)}} \right)$$

Agro-physiological Nitrogen Use Efficiency (APE)

Agro-physiological efficiency (APE): It is the economic yield per nutrient uptake.

$$APE = \left(\frac{\text{Grain yield in fertilized plot (Kg ha}^{-1}\text{)} - \text{Grain yield in unfertilized plot (Kg ha}^{-1}\text{)}}{\text{TNU in fertilized plot (Kg ha}^{-1}\text{)} - \text{TNU in unfertilized plot (Kg ha}^{-1}\text{)}} \right)$$

Internal Efficiency

Internal efficiency has been defined as the amount of grain yield produced per kilogram of nutrient accumulation in the aboveground plant dry matter expressed on an oven-dry basis. Internal efficiency is used to evaluate the ability of plants to transform nutrients acquired from all sources (soil and fertilizer) into economic yield (grain). A low IE suggests poor internal nutrient conversion due to stress (i.e., nutrient deficiencies, drought, heat, mineral toxicities, and disease)

$$IE = \frac{\text{Grain yield (Kg ha}^{-1}\text{)}}{\text{TNU (Kg ha}^{-1}\text{)}}$$

Partial Factor Productivity

The PFP is calculated in units of crop yield per unit of nutrient applied.

$$PEP = \frac{\text{Grain yield (Kg ha}^{-1}\text{)}}{\text{Fertilizer applied (Kg ha}^{-1}\text{)}}$$

Data Analysis

Data were entered into Microsoft Excel-2010. Analysis of variance for each response variable and their mean grouping was performed by using Gen-Stat package and treatment mean were compared by Least Significant Difference (LSD) at 0.05% level of significance.

Results and Discussion

Yield Attributing Characters

The effective tillers m⁻², no. of filled grains spike⁻¹, and thousand grain weights (g), are considered yield attributes of wheat (Table 2). The average effective tillers were recorded as 333.20 m⁻². Nutrient Expert based nutrient management produced the highest number of effective tiller (428.80 m⁻²), followed by LCC-N (382.50 m⁻²). Nitrogen omission plot had recorded the least number of effective tillers (251.50m⁻²). The average number

of filled grains spike⁻¹ was 36.46 grains spike⁻¹. The NE treatment produced the highest number of number of grains spike⁻¹ (40.43 grains spike⁻¹) followed by LCC-N (38.28 grains spike⁻¹), but the minimum grain number was recorded in Nitrogen omission plot (28.88grains spike⁻¹). The availability of nitrogen in soil promotes greater number of filled grains per spike, which is consistent with other findings (Shokri et al., 2009). Kunwar et al. (2019) and Dahal et al. (2018) reported that higher grains spike⁻¹ for NE model as compared to the farmer's fertilizer practice.

The test weight was influenced by different nutrient management practice (Table 2). The test weight of wheat ranges from 48.12 g to 54.03g, with the average of 52.2g. The higher grain weight per spike is due to higher nitrogen uptake in grains that resulted in increased photosynthate and carbohydrate accumulation which is in consistent with (Siddik, 2010). Similarly, the sterility percentage was significantly varied among the treatments ranging from highest 46.37% in nitrogen omission plot followed by FFP (43.63%) and Nutrient Expert-N (40%) although recorded least at Nutrient Expert recommendation (33.13%). Pant et al. (2020) reported that highest sterility was observed in nitrogen omitted plot and the lowest in nutrient expert-based model in rice which might be due to the supply of nitrogen in adequate amount which then promoted the availability of other nutrients such as P and K in NE based model, which is in accordance to our finding.

Table 2

Effect of Different Nitrogen Management Practices on Yield Attributing Characters of Wheat at Tikapur, Kailali, Nepal during 2020/2021

Treatment	Effective tillers m ⁻²	Filled grains spike ⁻¹	Thousand grain weight (g)	Sterility (%)
N Check (N0)	251.50 ^d	28.88 ^c	48.12 ^c	46.37
BR	303.00 ^{cd}	37.18 ^{ab}	52.50 ^{ab}	37.54
NE	428.80 ^a	40.43 ^a	54.03 ^{ab}	33.13
NE-N+FFP- P&K	341.20 ^{bc}	35.62 ^{ab}	51.84 ^{abc}	40.00
LCC-N	382.50 ^{ab}	38.28 ^a	53.81 ^{ab}	38.28
FFP	256.00 ^d	31.65 ^{bc}	50.31 ^{bc}	43.63
LSD (5%)	55.33(***)	5.27(**)	4.41(**)	NS
CV%	11.4	9.9	5.1	18.0

Grain and Biological Yields, and Harvest Index

Nutrient Expert recommendation produced significantly higher yield (4.59 t ha⁻¹)

compared to BR and FFP, but statistically similar with LCC (4.07 t ha⁻¹). The minimum yield was recorded in nitrogen omission plot which was 2.65 t ha⁻¹, highlighting, N is the most critical nutrient to increase the wheat yield (Table 3).

The estimated yield for Nutrient Expert was 5.5 t ha⁻¹ under favourable climatic condition and irrigation but due some crop damage at an earlier growth stage and scanty rainfall pattern the estimated and expected yield range i.e. 5.5 t ha⁻¹ of wheat variety was not met. Generally, there is positive correlation between the grain yield and nitrogen uptake. However, sometimes the crop varieties produce different grain yield with the same amount of nitrogen uptake which is due to the difference in internal nitrogen use efficiency (IEN) (Singh et al., 1998; Tirol-Padre et al., 1996). Sapkota et al. (2014) found similar results on use of NE model. The grain yield was found significantly correlated with agronomic characters such as plant height, total tillers m⁻², effective tillers plant⁻¹, grain spike⁻¹, test weight and harvest index due to application of nitrogen fertilizer (Kader et al., 2013), which is in accordance to our finding. It was found that the grain yield was significantly increased by increasing the nitrogen level by applying the fertilizer at right time, amount and space which is in close agreement to other findings (Ahmad et al., 2011; He et al., 2009).

The maximum biomass yield was obtained in Nutrient Expert recommendation (10.39 t ha⁻¹) as compared to Nitrogen omission plot (7.058 t ha⁻¹) and FFP (7.32 t ha⁻¹). Bhatta et al. (2020) and Sapkota et al. (2014) also found that higher biomass yield for NE over FFP. The dry matter production increased with the increase of nitrogen in wheat crop which might result in increment of the biomass yield. The results corroborate the findings of other authors Gupta et al. (1985) and Kumar et al. (2016), who also observed that biological yield increases with increasing fertilizer dosages. Nitrogen promotes vegetative growth by assimilation of more photosynthates into the crop, as well as increases in growth, yield and yield-attributed characteristics, which is supported by (Kumar et al., 2016).

The highest harvest index of 0.46 was recorded in LCC-N recommended doses of nutrient followed by and Nutrient Expert-N. Nitrogen omission had the lowest harvest index (0.38) due to differences in proportion of grain yield and biomass production. Findings of Kumar et al. (2017) and Sen et al. (2011) are in accordance with our result. An increase in the harvest index is the result of an increase in grain yield and biomass yield, both of which are significantly influenced by nitrogen application. A similar outcome was attained by (Farooq et al., 2012).

Table 3

Effect of Different Nitrogen Management Practices on Grain Yield, Biomass Yield and Harvest Index of Wheat at Tikapur, Kailali, Nepal during 2020/2021

Treatment	Grain yield at 14% moisture (t ha ⁻¹)	Biomass yield (t ha ⁻¹)	Harvest Index
N Check (N0)	2.65 ^d	7.05 ^b	0.38
BR	3.87 ^b	9.21 ^a	0.42
NE	4.59 ^a	10.39 ^a	0.44
NE-N	4.09 ^{ab}	8.99 ^a	0.45
LCC-N	4.07 ^{ab}	9.19 ^a	0.46
FFP	3.32 ^c	7.32 ^b	0.45
LSD (5%)	0.52(***)	1.49(***)	NS
CV%	9.0	11.2	11.5

Economic Analysis

The economic analysis suggested that the Nutrient Expert based fertilizer management produces higher economic return NRs. 1.42 lakhs ha⁻¹ compared to N omission and FFP. Although the total cost was higher in Nutrient Expert recommendation (NRs.0.58lakhs ha⁻¹) and the lowest in nitrogen omission plot NRs. 0.50 lakhs ha⁻¹ followed by farmer's fertilizer practice NRs. 0.51 lakhs ha⁻¹ (Table 4), NE produced the higher return and cost benefit ratio.

Table 4

Effect of Different Nitrogen Management Practices on Total Cost, Revenue and BC Ratio of Wheat in the on-farm Experiment at Tikapur, Kailali, Nepal 2020/21

Treatment	Total Cost (NRs. lakhs ha ⁻¹)	Gross Revenue (NRs. lakhs ha ⁻¹)	B:C Ratio
N Check (N0)	0.50 ^d	0.92 ^b	1.82 ^b
BR	0.57 ^b	1.21 ^a	2.13 ^{ab}
NE	0.58 ^b	1.42 ^a	2.46 ^a
NE-N	0.46 ^c	1.26 ^a	2.71 ^a
LCC-N	0.53 ^c	1.22 ^a	2.29 ^{ab}
FFP	0.51 ^d	1.16 ^{ab}	2.24 ^{ab}
LSD (5%)	0.01(***)	0.26(*)	0.50(*)
CV%	1.90	14.30	15.10

The gross revenue among the treatments was found highest for NE based model NRs 1.42 lakhs ha⁻¹ which is statistically similar with LCC and NE-N and the lowest for nitrogen omission plot NRs. 0.92 lakhs ha⁻¹. Bhatta et al. (2020) and Kunwar et al. (2019) also showed similar result that revenue through SSNM-Nutrient Expert is higher than farmer's practices and government recommendations in wheat. The gross return is higher in NE[®] is due to an increase in grain yields from adequate nutrient applications than other nutrient management practices. The B:C ratio of NE model in comparison to the farmer's practice was high. Kunwar et al. (2019) also reported higher BC ratio for NE-model (2.42) over FFP (1.37). The BC ratio for NE-model was high due to the high gross return over cost of cultivation compared to FFP (Fonsah et al., 2007, 2008), which is in accordance to our findings.

Nitrogen Content, Nitrogen Uptake, and Nitrogen Use Efficiency

Nitrogen concentration in grain is more than in straw ranging from 1.73 to 2.12 % in grain and 0.34 to 0.39 % in straw (Table 5).

Table 5

Effect of Different Nitrogen Management Practices on Nitrogen Uptake in Wheat at Tikapur, Kailali, Nepal during 2020/2021

Treatment	Grain N%	Straw N%	Grain N uptake (Kg ha ⁻¹)	Straw N uptake (kg ha ⁻¹)	Total N uptake (kg ha ⁻¹)
N Check (N0)	1.73 ^d	0.34	46.84 ^d	14.68 ^b	61.52 ^c
BR	1.85 ^{bcd}	0.39	74.20 ^{bc}	23.17 ^a	97.36 ^b
NE	2.08 ^{ab}	0.38	85.31 ^{ab}	21.86 ^a	107.11 ^{ab}
NE-N	1.91 ^{abcd}	0.35	85.25 ^{ab}	18.72 ^{ab}	104.02 ^{ab}
LCC-N	1.89 ^{abcd}	0.35	77.00 ^b	18.47 ^{ab}	95.47 ^b
FFP	1.84 ^{bcd}	0.37	62.16 ^c	14.89 ^b	77.05 ^c
LSD (5%)	0.21(*)	NS	13.99(***)	5.67(*)	15.71(***)
CV%	7.60	11.70	12.40	19.80	11.10

Fertilizer treatments significantly affected different component of NUE. The highest N uptake by grain was observed in Nutrient Expert recommendation (85.31 kg ha⁻¹), but lowest uptake was in Nitrogen omission plot (46.84 kg ha⁻¹). N uptake by straw was found higher in blanket recommendation (23.17kg ha⁻¹) and statistically par with Nutrient Expert recommendation (21.86 kg ha⁻¹). The least straw N uptake was found in nitrogen omission plot (14.68 kg ha⁻¹). The higher nitrogen concentration of grain and straw with increasing nitrogen rate might be due to the crop's having

adequate nitrogen, which could enhance nitrogen concentration on biological yield, particularly straw, due to better roots and greater density. These is in line with the findings of Worku et al. (2007) and Astaneh (2018) who reported that increase in the supply of nitrogen increases straw nitrogen content gradually.

In our findings the highest partial factor productivity (PFP), Agronomic Nitrogen Use Efficiency (ANUE), Agronomic nitrogen recovery efficiency (ANRE) and Agro-physiological nitrogen use efficiency were seen in LCC-N and lowest in farmer's fertilizer practice (Table 6).

Table 6

Effect of Different Nitrogen Management Practices on Nitrogen Use Efficiency in Wheat at Tikapur, Kailali, Nepal during 2020/2021

Treatment	PEP	ANUE	ANRE	APE	IE-N
N Check (N0)					38.15
BR	37.80 ^{cd}	15.72 ^{bc}	0.48 ^a	31.85	43.50
NE	40.86 ^c	17.51 ^{bc}	0.40 ^a	42.21	44.03
NE-N+FFP- P&K	36.4 ^{cd}	13.06 ^c	0.37 ^a	33.28	39.55
LCC-N	69.97 ^a	24.84 ^a	0.56 ^a	45.85	43.82
FFP	28.95 ^d	5.91 ^d	0.13 ^b	41.11	39.24
LSD (5%)	8.367(***)	6.415(***)	0.184(**)	NS	NS
CV%	13.1	27.8	30.8	28.5	8.20

These results are in close agreement with previous studies by Maiti and Das (2006) and Kundu et al. (2000), they observed that the LCC-N plots showed high PFP, ANUE, ANRE and APE against fixed-scheduling N splits. Singh et al. (2007) also reported high PFP in LCC-N than farmer's practice. Similarly, Haile et al. (2012) found a declining trend in nitrogen use efficiency as nitrogen rates increased, which is in accordance to our findings. With high nitrogen use efficiency, more of the applied nitrogen is absorbed by the crop, benefiting the ecosystem by reducing leaching and volatilization loss as well as enhancing the farmers' profits by increasing the yield and protein content in grain which increases the economic value of grain. The IE-N was found highest for Nutrient Expert recommendation (44.03). Ladha et al. (1998) and Zhang et al. (2007) reported that variation in IE-N may occur due to differences in internal N requirements for development and the plant's capacity to translocate, distribute and mobilize absorbed N to and from various organs, which support our findings.

Residual Soil Chemical Properties

The highest nitrogen residue was found on farmer field practice (0.56 %), which might be due to the application of large amounts of nitrogen (Johnkutty et al., 2000) as compared to the N omission plot (0.10%). Our result is accordance with the research conducted by Xu et al. (2020), who found that the residual effects of fertilizer N increased with the increase of previous N application rate and decreased over time due to the combination of N uptake and N loss pathways (Table 7). While lower N availability in N omission plot might be due to insufficient N application that was utilized for crop growth and uptake. These results were similar to the findings of Shukla et al. (2006).

Table 7

Effect of Different Nitrogen Management Practices on Residual Soil Chemical Properties and Total N Uptake at Tikapur Kailali, Nepal during 2020/2021

Treatment	N% in soil	Total Nitrogen uptake
N Check (N0)	0.10 ^c	61.52 ^c
BR	0.47 ^b	97.36 ^b
NE	0.21 ^{de}	107.11 ^{ab}
NE-N+FFP- P&K	0.27 ^{cd}	104.02 ^{ab}
LCC-N	0.39 ^{bc}	95.47 ^b
FFP	0.56 ^{ab}	77.05 ^c
LSD (5%)	0.15(***)	15.71(***)
CV%	27.2	11.1

Conclusion

The study suggests that N is the most limiting nutrient for wheat cultivation in Western Terai region of Nepal and special attention is needed to recommend site specific N recommendation to improve yield and nitrogen use efficiency. Site-specific nutrient management (SSNM) based on Nutrient Expert, real-time N management using leaf color chart (LCC) could help to minimize the yield gap and increase the fertilizer use efficiency compared to the government's blanket recommendation and farmer's practice. Nepalese farmers would be able to significantly improve the yield of wheat and also raise their income through the use of site-specific fertilizer recommendation using NE in combination with LCC.

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Benefits of Agricultural Mechanization in Rice Farming of Chitwan, Nepal

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Abstract

A study was conducted in the Chitwan district to investigate the benefits of mechanization in rice farming. The study aimed to determine the rate of adoption of mechanization in rice farming in Chitwan, analyze farmers' preferences towards mechanization for rice farming, and identify constraints during the implementation of farm machinery. A sample of 150 rice-growing commercial farmers in Chitwan was selected using a simple random sampling method from five municipalities. Descriptive analysis was used to study different socio-economic, demographic, and physical factors related to mechanization in rice farming. Primary data were collected using a semi-structured questionnaire, while secondary data were obtained through a review of literature from various sources. The results showed that farmers prefer Mould Board Plough and Cultivator as primary tillage operations. Labor scarcity was the major reason for adopting mechanization in rice farming, and some farmers preferred mechanization due to the unavailability of traditional tools in the study area. The reduction of human drudgery by mechanization was found to be moderate as human labor was not entirely replaced by machines. A binary logit regression model was used to determine the benefits of mechanization among paddy cultivators. The study found that the benefits of mechanization included an increase in total annual income, income from rice farming, off-farm income, total area under rice cultivation, improvement in living standards, and a reduction in the cost of production. The major problems in the implementation of mechanization in rice farming were ranked, and low income was identified as the main problem, followed by low subsidy.

Keywords: mechanization, rice farming, tools, benefits, labour shortage

Introduction

Nepal is a small, landlocked country situated between India and China, with agriculture being the primary occupation for over 60% of the population (MoALD, 2020). However, Nepal faces severe food insecurity, with more than two-thirds of its districts experiencing food deficits each year (Joshi, 2012). To mitigate these issues and enhance farm productivity, profitability, and efficiency, farm mechanization has emerged as a critical solution (GC et al., 2019).

The history of farm mechanization in Nepal dates back to the 1970s with the introduction of two- and four-wheel tractors (Takeshima, 2017). Institutional development for formal sector farm mechanization began with the establishment of the Agricultural Implement Research Unit in Birgunj in 1960 (MoAD, 2014). Currently, agriculture in Nepal is undergoing modernization, with a coexistence of traditional farming practices and the infusion of large machinery (Houssou & Chapoto, 2014). However, complete mechanization, where animal or human labor is entirely replaced by power-operated machines, has yet to be realized (Verma, 2006).

Farm mechanization in Nepal faces significant challenges due to the diversity of its geography and the prevailing inequalities in ownership of property and other economic conditions (Rahman et al., 2019). The fragmentation of landholdings and the small average holding size of 0.98 hectares have also hindered the growth of four-wheel tractors in the country (Justice & Biggs, 2013). Moreover, the availability of mechanical power in Nepal is only 23%, with the majority of mechanical power concentrated in the Terai region, accounting for 92.28% of the total mechanical power available in Nepal (Shrestha, 2011).

The government of Nepal has taken steps to promote farm mechanization in the country, with the Agricultural Development Strategy (ADS) 2015-2035 emphasizing the need to adopt a mechanized approach to agriculture and increase the availability of agricultural machinery and equipment (MoALD, 2015). Additionally, various policies and programs have been introduced to provide subsidies and loans to farmers for purchasing agricultural machinery and equipment. However, the adoption of farm mechanization in Nepal remains slow due to various factors, such as the lack of infrastructure, access to finance, and technical knowledge among farmers.

Despite the challenges, the benefits of farm mechanization are apparent in Nepal. Studies have shown that farm mechanization leads to increased crop productivity, reduced labor requirements, and decreased production costs (GC et al., 2019). Mechanization also facilitates timely planting and harvesting of crops, thereby reducing post-harvest losses (Joshi, 2012). Additionally, mechanization can increase the farmer's income by enabling them to take on more farm activities, leading to higher overall farm profitability (Houssou & Chapoto, 2014).

In a nutshell, farm mechanization in Nepal has the potential to address food insecurity and enhance farm productivity, profitability, and efficiency. Despite the challenges, the government's efforts to promote farm mechanization are a positive step towards achieving these goals. To ensure the widespread adoption of farm mechanization in Nepal, more investment in infrastructure, access to finance, and technical knowledge among farmers is needed. With proper support, farm mechanization can contribute significantly to improving the livelihoods of farmers and promoting sustainable agricultural practices in Nepal.

The problem at hand is the need for agricultural mechanization in smallholder farming systems in Nepal, particularly in rice farming in the Chitwan district. Agricultural mechanization is one of the key processes that will affect the future of smallholder farming systems in Asian countries, including Nepal, where just 8 percent of farmers use tractors, 26 percent use iron plows, and more than 60 percent of intercultural operations are managed by women (Mano et al., 2020). Poor infrastructure is a major constraint on the mechanization of agriculture in Nepal. However, Kaur and Arshreen (2017) argue that providing easy credit and raising awareness of financial intermediaries can help mitigate these constraints and facilitate mechanization. Moreover, declining farm size with land fragmentation poses a significant challenge for agricultural mechanization in Nepal. Smaller landholding sizes reduce the self-sufficiency of farms and decrease farmers' interest in investing in mechanization in agriculture due to weak economies of scale (Gauchan & Shrestha, 2017).

The need for mechanization in agriculture is further underscored by labor shortages, outmigration of young people, and the need to increase production of staple crops to meet the demand of a growing population (Takeshima, 2017b). According to Olaoye JO (2010), the appropriate choice and proper use of mechanized inputs into agriculture have a direct and significant effect on land productivity, labor productivity, the profitability of farming, sustainability, environment-friendliness, and the quality of life of people engaged in agriculture.

Despite efforts by farmers and various organizations, mechanization in rice farming remains low, with mechanization only present in a few activities such as plowing and threshing. While the government, private sector, and I/NGOs are encouraging farm mechanization, the direct impact of mechanization on farmers in rice farming remains unknown. Furthermore, although some level of mechanization has been implemented in rice farming in the Chitwan district, the benefits of mechanization have not been fully observed, and there is a weak research and development system on agricultural mechanization and its benefits in rice farming.

The research questions for this study are as follows: What are the benefits of mechanization in rice farming in the Chitwan district? What is the rate of adoption of mechanization in rice farming? What are the major problems faced by farmers in implementing mechanization for rice farming? By addressing these questions, this study aims to explore the potential for providing easy credit and raising awareness of financial intermediaries to facilitate mechanization and reduce the human drudgery faced by farmers in rice farming within the Chitwan district. Moreover, the study seeks to identify existing mechanization systems, people's preferences in mechanization, and problems encountered by farmers during mechanization in rice farming within the Chitwan district.

This study aims to explore the benefits of agricultural mechanization in rice farming in the inner Terai region of Nepal, where agriculture is the primary occupation. The lack of previous research in this area prompted the study, as the findings could be useful for researchers, policymakers, and administrators to improve agriculture mechanization activities and improve the livelihoods of farmers. The study focuses on the productivity of rice, annual income of farmers, off-farm income, cropping intensity, and reduction of human drudgery. Gauchan and Shrestha (2017) note that agricultural mechanization is often misunderstood as tractorization, and this study aims to encompass semi-automated manual and animal-drawn equipment.

The current study endeavors to investigate the relationship between mechanization and various indicators such as production, productivity, annual income, working efficiency, and the living standard of farmers in the context of rice farming. Despite the apparent advantages of mechanization, there is a dearth of literature regarding this issue in our country. Thus, this study aims to address this research gap by providing empirical evidence on the scope and benefits of mechanization in rice farming.

The practical implications of the study's outcomes are substantial for farmers, researchers, and policymakers alike. The study's findings can be used to facilitate the adoption of mechanization among farmers, advance researchers' knowledge on the subject matter, and inform policymakers to develop or refine existing policies for the effective implementation of mechanization in rice farming.

Therefore, this study's findings are expected to contribute significantly to enhancing the overall knowledge on the scope and benefits of mechanization in rice farming in our country, thereby fostering the growth and development of the agriculture sector.

This study is subject to several limitations that could affect the external validity and reliability of its findings. The first limitation pertains to the sample size, which may

not be representative of the wider population. Moreover, the study's findings may not necessarily apply to other regions of the country with distinct psychological, cultural, and socioeconomic characteristics.

Another limitation concerns the study's geographical scope, which was confined due to budgetary and time constraints. The sample was drawn from five municipalities, one metropolitan city, and one rural municipality, which could introduce bias into the results. Additionally, the data collected may be subject to response errors, as the farmers' ability to recall information from their memory may vary.

Overall, while the present study provides valuable insights into the benefits and scope of mechanization in rice farming, it is essential to take into account its limitations while interpreting the results. Future research endeavors could address these limitations by employing larger and more diverse samples, covering broader geographic regions, and utilizing more robust data collection methods.

The general objective of this study is to determine the benefits of mechanization in rice farming in Chitwan district. The specific objectives of the research are:

1. To determine rate of adoption of mechanization in rice farming.
2. To find out preference of farmer towards mechanization in rice farming.
3. To analyze the reduction of human drudgery by mechanization in rice farming.
4. To identify the problems during mechanization in rice farming in Chitwan district.

Materials and Method

The reason for selecting Chitwan district for the study because this district has implemented some degree of mechanization in rice farming; however, the benefits of mechanization in this area have not been extensively studied. Furthermore, the research and development system for agriculture mechanization and its benefits in rice farming are weak in Chitwan. This study was initiated to investigate the rate of adoption of machinery, existing mechanization systems, people's preferences in mechanization, the reduction of human drudgery, and the problems encountered during mechanization in rice farming within the Chitwan district. The findings from this study will contribute to filling the knowledge gap on the benefits of mechanization in rice farming in Chitwan and serve as a basis for policy formulation and decision-making by stakeholders.

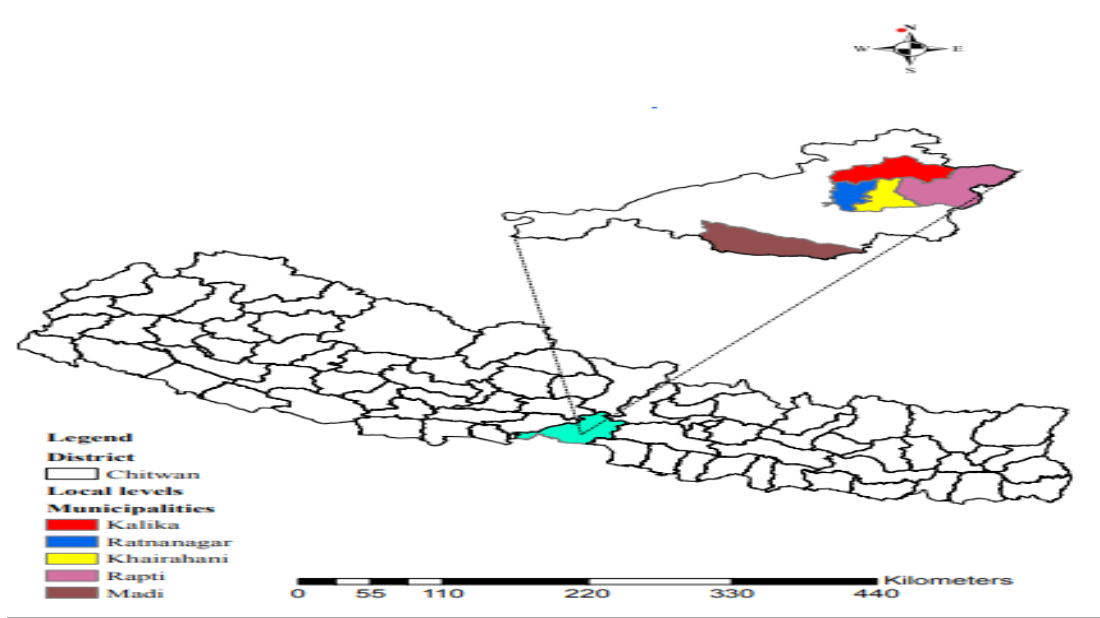
Description of Study Area and Study Site

Chitwan district of Bagmati province was purposively selected for the study. Chitwan, the inner Terai district of Nepal, popularly known as Rapti valley or Chitwan Doon valleys lies between Mahabharat and Siwalik and valley covers an

area of approximately 2238.39 sq. km. and it lies about 139 km southwest of capital Kathmandu. The elevation varies from 144 to 1947 mean sea level. Chitwan valley has a subtropical and tropical climate with hot and moist summer and cool and dry winters. Rice is the major crop grown in the Chitwan district with productivity equal to national level (MoALD, NPC CBS, 2019). There are five municipalities; Ratnanagar, Khairani, Rapti, Kalika and Madi and one rural municipalities Ichhakaman and one Bharatpur metropolitan municipalities were biased for making the sample homogeneous. The geography and climate of Chitwan district highly favour rice farming.

Figure 1

Map of Chitwan District Showing Five Municipalities



This study was conducted in 2021 in Chitwan district (inner terai) of Nepal. In this study, 150 farmers from five municipalities were selected randomly from commercial farmers of Chitwan. Ratnanagar, Khairani, Rapti, Kalika and Madi were the five municipality where study conducted where as one rural municipalities Ichhakaman and one Bharatpur metropolitan municipalities were left for making the sample homogeneous. The information collected was analyzed by using Statistical Packages for Social Science version 16.0 and Microsoft office excel 2013.

Methods of Data Analysis

Rate of Adoption of Machineries and Famer's Classification

The rate of adoption of machineries was based on the number of machineries adopted

for rice farming to the total number machinery available for the farming purpose. Total twelve machinery were recommended they were Mould Board plough, Cultivator, Disc plough, Rotavator, Harrow, Leveler, Puddler, Knapsack sprayer, Pumpset, Paddy reaper, Paddy thresher, thinkand combined harvester. High implementers and low implementers are categorized as per rate of adoption of the machinery which was 50.27%. The respondent whose adoption rate was more than 50% were categorized into high implementers and those whose rate of adoption was less than 50 % were categorized into low implementers and low implementers were consider as non-adopters.

$$\text{Rate of adoption (\%)} = \frac{\text{No of adopted farm machinery in last two year}}{\text{Total no of recommended farm machinery in rice farming}} * 100$$

Farmers' Preference towards Mechanization

A five point and seven-point scaling technique were used to rank the farmer's preference towards mechanization tool and problems faced by farmers for rice production during implementation of mechanization. An index value was calculated using the following formula and final rank was obtained.

$$I_{\text{prob}} = \sum_{i=1}^N S_i F_i$$

Where,

I_{prob} = Index value for intensity ($0 < I < 1$)

\sum = Summation

S_i = Scale value of
 i^{th} intensity

F_i = Frequency of i^{th}
response

N = Total number of
respondents

A binary logit model of regression was carried out to find out the impact of mechanization in rice farming in the study area. The logit model was based on following econometric expression;

$$Y_i = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \dots + \beta_{10} X_{10i} + e_i$$

Y_i is a dependent binary variable i.e. Implementation of farm machineries measured as dummy (1=high implementers, 0=low implementers)

β_0 = constant term

$\beta_1, \dots, \beta_{11}$ = regression coefficient to be estimated
 X_{1i}, \dots, X_{12i} = explanatory variables explained as below
 X_{1i} = Total land of farmers (continuous)
 X_{2i} = Total land under rice farming (continuous)
 X_{3i} = Annual production (continuous)
 X_{4i} = Total household annual income from rice farming (continuous)
 X_{5i} = Total annual income (continuous)
 X_{6i} = Total land under rice farming (continuous)
 X_{7i} = Years of farming experience (continuous)
 X_{8i} = Credit taken (1=Yes, 0=No)
 X_{9i} = Years of schooling (continuous)
 X_{10i} = Involvement in cooperatives (1=Yes, 0=No)
 X_{11i} = Gender of the household head (1=male, 0= female)
 e_i = Error term

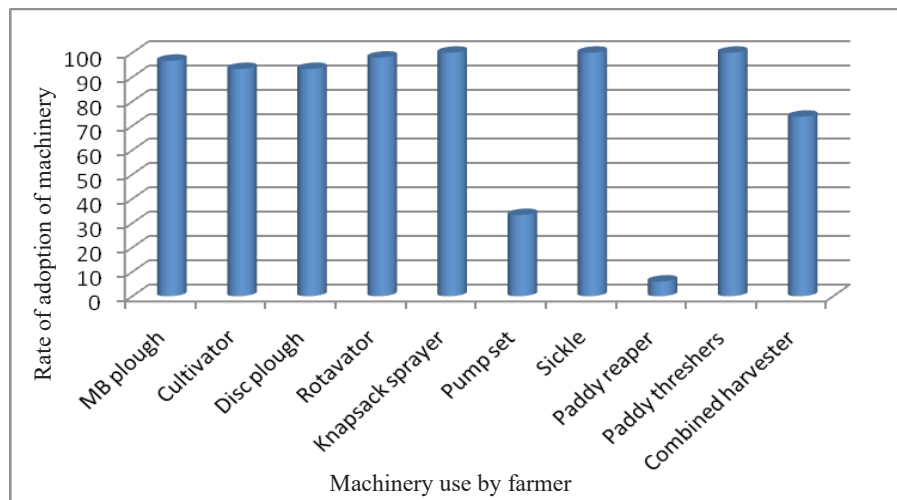
Results and Discussion

Status of Machineries Used by Farmers in the Study Area

In this study, majority of the farmers (96.7 %) were found adopting Mould Board plough and 93.33 % were using Disc Plough and Cultivator (Figure 2) for primary tillage and for secondary tillage rotavator was used by 98% farmers. Knapsack sprayer Pump set was also used in good proportion the study area. Sickle was used by 100 % farmers for harvesting and for threshing 100% farmers used paddy thresher while combined harvester was used by 73.7 % farmers.

Figure 2

Adoption of Different Farm Machineries by Farmers in Chitwan District (in 2021)



Framers' Preference towards Mechanization

Among 150 respondents, maximum prefer mechanization due to labour shortage in Chitwan district (Table1). More profit by mechanization was ranked as second, easy availability was ranked third position, easy cultivation by machinery ranked fourth among the respondent and unavailability of traditional tool for cultivation was ranked fifth position.

Table 1

Farmer's Preference towards Mechanization Tools in Chitwan District (in 2021)

Preference	Score					Index value	Rank
	1	0.8	0.6	0.4	0.2		
Labor shortage	29	74	18	22	7	0.24	1
More profit in comparison to traditional method	42	39	47	13	9	0.23	2
Easy availability of machinery	20	20	51	46	13	0.19	4
Easy cultivation practice by machinery use	54	11	25	46	14	0.22	3
Unavailability of old tool for cultivation	5	8	10	22	105	0.11	5

Benefit of Mechanization in Human Labour

The study observed a significant reduction in human labor usage in the study area due to the implementation of mechanization in rice farming. The use of machinery for land ploughing, puddling, and threshing operations was reported by all respondents. However, manual bunting and sowing activities were still being carried out by all farmers. Mechanical weeding was preferred more, along with pre-emergence herbicide use in the rice field. Only 9% of farmers used paddy reaper for harvesting, while the remaining 94% performed harvesting manually. Overall, the study highlights the positive impact of mechanization on reducing human labor requirements in rice farming operations.

Table 2

Human Labour Displaced by Mechanization in the Chitwan District (in 2021)

Field operations	Use of machineries	Manual adoption
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Ploughing	150 (100)	0
Bunting	0	150 (100)
Puddling	150 (100)	0
Sowing	0	150 (100)
Pre emergence use of herbicide + manual weeding	0	120 (80)
Only manual weeding	0	30 (20)
Harvesting	9 (6)	141 (94)
Threshing	150 (100)	0

Benefit of Mechanization in Area, Production, Income from Rice Farming

A binary logit regression was used to analyze the relationship between the selected variables and impact of mechanization. The dependent variable was the level of mechanization which is a dichotomous variable consisting of high implementers and low implementers. Farmers whose adoption ratio of mechanization was more than 50% are categorized as high implementers and rest of the farmers are low implementers.

Table 3

Benefits of Mechanization in Different Activities in Chitwan District (in 2021)

Variables	B	S.E.	Wald	Sig.	Exp(B)
Total Land in kattha	.146	.123	1.415	.234	1.157
Total area under rice in katha**	.361	.166	4.749	.029	1.435
Annual production rice (Metric ton)**	3.393	1.712	3.928	.047	2.002
Income from rice**	.000	.000	5.963	.015	1.004
Annual income**	.000	.000	6.012	.014	1.005
Time periods of farming years	.094	.062	2.321	.128	1.099
Credit taken	2.080	1.340	2.409	.121	8.008
Years of schooling*	1.408	.806	3.048	.081	1.088
Involvement in co-operatives	1.618	1.608	1.012	.314	.198

Gender	1.337	1.267	1.115	.291	3.809
Source of information	.150	.664	.051	.821	1.162

***indicates significance at 1% level of significance

**indicates significance at 5% level of significances

*Indicates significance at 10% level of significance

Explanations of Variables Used in the Table

B= Logistic regression coefficient for constant,

S.E= Standard error

Wald = Wald chi-square test

Sig = Significant level

Exp (B) = odd ratio

The result shows that by keeping other factors constant, with an increase in one year of schooling, the high implementers prefer the mechanization 1.08 times more than low implementers. High implementers adopt mechanization by 1.435 times more than low implementers in large rice farming area. High implementer has 2.002 times high production of rice than the low implementers. The average income from rice of high implementers was higher than low implementers. The annual incomes from rice farming of high and low implementers were Nepalese Rupees 2,49,213 and 1,29,186 respectively. There was rise in income from rice farming of high implementer's by 1.004 times than low implementers. The average annual income of high implementers is higher than low implementers. The average annual incomes of high and low implementers are about Nepalese Rupees 5,83,835 and Nepalese Rupees 2,46,815 respectively. A raise in a unit of a total annual income, there is a chance of being a high implementer by 1.005 times. An increase in one year of schooling, the high implementers prefer the mechanization 1.08 times more than low implementers. Farmers with high level of education tends to be more and good implementers of the heavy machineries in the rice farming (Ayodele et al., 2012).

Table 4

Activities Having Impact by Mechanization in Rice Farming in Chitwan (in 2021)

Activities	High implementers	Low implementers
Years of School	5.75	4.33
Total land holdings	24.413	13.6

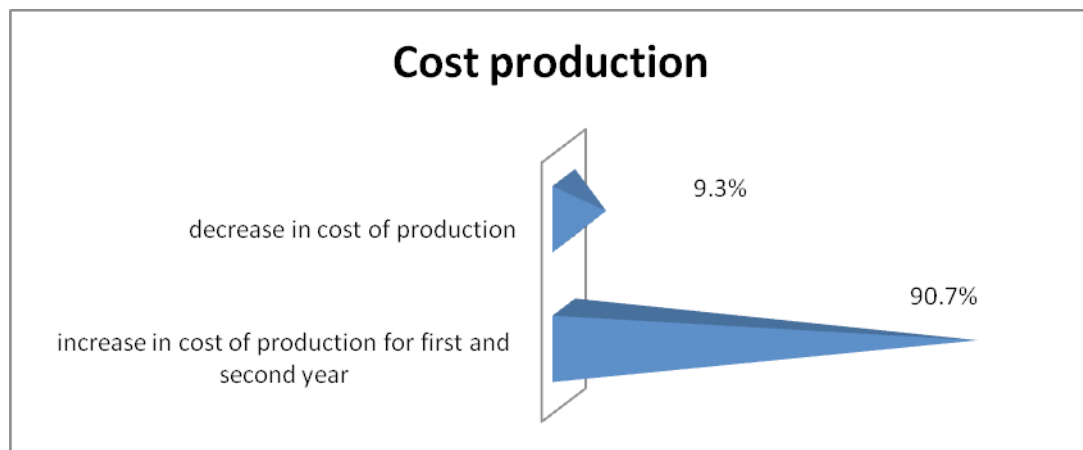
Area for rice farming	22.08	11.03
Production of rice farming (metric ton)	5.19	3.02
Income from rice farming (Nepalese Rupees)	249213.333	129186.667
Annual income (Nepalese Rupees)	5,83,835.616	2,46,815.789

Benefit of Farm Mechanization on Cost of Production in Rice Farming

In this study, majority of the farmers including both high and low implementers (90.7 %) had experienced increase in cost of production for first and second year and decrease in cost of production thereafter, after the adoption of agriculture machines in different agriculture operations (Figure 3). This finding is in agreement with the study of Upreti (2010), where it was found that farmers who have introduced mechanization into their rice farming can reduce production costs by 27% and increase their profits per hectare by 36%.

Figure 3

Farmer's Perception and Cost of Production in Chitwan (in 2021)



Benefit of Mechanization in Cropping Rotation Intensity

Crop rotation intensity is high among the high implementer than among the low implementers. Low implementers keep land fallow for one season while high implementer does not keep fallow land. High implementers produce both Aus and Spring rice but only spring season rice is produced by low implementers.

Table 5*Crop Rotation Intensity of Farmers in Chitwan (in 2021)*

Crop rotation	Average
High implementers	301.33
Low implementers	261.33

Benefit of Mechanization in Cropping Intensity

In the study high implementers have 121.57% cropping intensity and low implementers have 93.05 % cropping intensity. More crop products are obtained by high implementers than the low implementers. Tractor-owning farms had a higher cropping intensity as compared to the case of those without a tractor (NCAER, 1974).

Table 6*Cropping Intensity and Level of Mechanization in Chitwan (in 2021)*

Crop intensity	Average
High implementers	121.57
Low implementers	93.05

Benefit of Mechanization on-off Farm Income

Off-farm income of the high implementers was more by 19.72% than the low implementers. High implementers were able to earn more income for the household by many other supplementary activities. Tractorised farms reduced their draught animal stock and increased their milch stock and the tractor owners and users derived higher per hectare gross income compared to bullock farms (NCAER, 1980).

Table 7*Off-farm Income and Level of Mechanization in Chitwan (in 2021)*

Income in Neplease Rupees	Mean
High implementers	401853.33
Low implementers	335653.30

Problems in Mechanization Implementation in Rice

There are many problems faced by the farmers in the implementation of mechanization in rice farming.

Table 8*Problems in Implementation of Machinery in Chitwan (in 2021)*

Problems	Score							Index	Rank
	1	0.85	0.71	0.57	0.42	0.28	0.14		
Lack of subsidy	38	83	18	7	4	0	0	0.21	II
Low income	92	43	13	2	0	0	0	0.23	I
Illiteracy	15	21	85	26	2	0	1	0.14	III
Lack of information about machinery	4	1	29	92	20	4	0	0.11	IV
Difficult in handling machine	0	1	4	18	113	13	1	0.09	V
Un-access to hiring center	1	1	0	4	11	118	15	0.07	VI
Unsafe in handling machine	0	0	0	1	1	15	133	0.04	VII

Major problems related in implementation of mechanization were ranked. Ranking of the problems was done by using the comparative rating scale. The use of seven-point scale was done based on the response of the farmers during the interview schedule. Low income was ranked as a major problem in the adoption of mechanization in the Chitwan district. Lack of subsidy was ranked as a second major problem. Illiteracy, lack of awareness about machinery, difficulty in handling machinery's-access to hiring center and unsafe in handling machine were ranked as third, fourth, fifth, sixth, and seventh, respectively.

Conclusion

The use of machines in rice farming has positive impacts on working efficiency, productivity, and household income. Mould Board Plough and rotavators are commonly used for primary and secondary tillage, respectively. Paddy threshers are used for threshing, displacing the need for human labour. Mechanization is preferred by farmers due to labor shortages during peak farming periods. Lack of income and government subsidies hinder the implementation of mechanization. Strong government support is needed for the purchase and distribution of machines to farmers.

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Genetic Variability for Growth and Yield Traits in Rice

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Abstract

Genetic variability is necessary for any crop breeding program to develop superior varieties. The objective was to estimate the genetic variability for growth and yield traits. The experiment was carried out at Baijanath-4, Banke district, Province no. 5 Nepal during June to November, 2019. Eleven rice genotypes were evaluated in a randomized complete block design with three replications. Days to flowering, days to maturity, panicle length, plant height, number of panicle per hill, number of tiller per hill, grain yield and thousand grain weights were found significant. Moreover, number of panicle per hill having high heritability (79%) have maximum genotypic coefficient of variation (29.03). Further, thousand grain weight, grain yield, plant height need to be considered as effective traits for breeding material selection. PB 1509 was declared superior genotype among aromatic genotype and also found as effective genotype with short height, more thousand grain weight, higher yield potential than compare to check HH1. Thus, the exploitation of PB1509 in further yield trial will contribute to National Rice Breeding Programs of Nepal.

Keywords: rice, heritability, variation, yield

Introduction

Rice (*Oryza sativa* L), is one of the decisive (basic) staple cereal crops feeding more than 3.5 billion people worldwide, belonging to family Poaceae with chromosome number 24. In terms of production, rice ranks third most staple crops after maize and wheat in world. Rice occupies first position among the cereals and contributes significantly in the Nepalese agriculture and directly related to food security and

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livelihood of majority of people in the Asia region. Ranging from east to west and lowland Terai (50-300 msl) to hills (>300-1500 msl) and mountains (1500-3050 msl) according to Sapkota et al., (2010). Nepal has plentiful agro-biodiversity that includes rice adaptation and cultivation.

In Nepal, rice is grown in major three agro-ecological regions and with irrigated, rain-fed lowland and upland production system. Agricultural growth rate (1.8) is still below with the population growth rate (2.3%) per annum (Tiwari & Pokharel, 2021). The rice occupies 58% of total cultivated land throughout Nepal and provides 50% of the calories requirement of Nepalese people (CDD, 2015).

Characterization of individuals in the germplasm is the primary goal to provide information for plant breeding programs for broadening the prevailing genetic base in Rice. Many studies have been carried out for germplasm utilization in rice for breeding purposes. Further, analyzing genetic and morphological differentiation, distinguishing diversity, assessing variability in agronomic characters among rice variety, evaluating genetic relationships and characterizing rice genotypes which are adapted to specific environment conditions are also important aspects in the field of evolutionary, functional and ecological biology. Different genetic variability parameters, such as genotypic coefficient of variation (GCV), phenotypic coefficient of variation (PCV), heritability, and genetic advance for yield attributing traits, are major concerns for any plant breeder and crop improvement program. Furthermore, Heritability (h^2) of a trait is vital for selection and determination of genotype. The study of relationship of Rice yield with plant height, panicle per hill, tiller per panicle, days to maturity and thousand grain weights in genotypic and phenotypic level makes effective evaluation on varieties.

Since 1966 IRRI has provided improved germplasm to Nepal contributing to nearly 70% of high yielding inbred rice varieties developed and released in Nepal (Tiwari & pokharel, 2021). Kirkegaard and Hunt (2010) explained use of high yielding varieties and location specific genotype is one vital option for the increasing productivity of the agricultural system. The present study was carried out to understand the genetic background and agro-morphological traits of rice genotype. The study was conducted to identify suitable genetic materials and assist to increase rice productivity through determining the high yielding rice genotype.

Materials and Methods

Experimental Location and Planting Materials

The experimental was conducted in Baijanath-4, Banke district, Lumbini Province, mid-western Nepal during June 2019 to November, 2019. The research was

conducted in Gorkha Polytechnic College and Research Centre Research farm and geographically situated at 28°14'09.6"N latitude and 81°39'44.1"E longitude with an elevation of 170-meter average sea level (m asl). The average annual rainfall is 1312 mm. The highest precipitation occurs in July which is about 406 mm and the least rainfall occurs in November. The highest temperature is in May which is around 38°C and minimum temperature is around 12°C in November (MFD, 2019).

The plant materials used in research were the genotypes provided by IRRI project in Nepal and NRRP, Hardinath (NARC). Eleven longer slender rice varieties are Sarbati, Pusa basmati-1, Bahuguni-1, Dejgora, Hardinath Hybrid-1 (HH1) (check variety), NR973, Pantdhan2, PB1509, PusaSugandha-5, PB1121 and Rajendra Bhagwati.

Experimental Design, Treatment Details and Cultural Practices

Experiment was carried out in Randomized Complete Block Design with 3 replications. The total area of plot is 540 m² with individual plot size was 5×2 m². The 22 days old 2-3 seedlings were transplanted in a line with spacing 20 × 20 cm². The space between each replication is 1m and distance between two test plots and from outer border is 0.5m.

The research field was ploughed with tractor to make suitable depth for transplanting (15-20 cm) and *Sesbania spp* (dhaincha) incorporated into the soil for green manuring. Finally, leveling was done. The chemical fertilizer was applied at the rate of 100:60:40NPK kg/hectare (Marahatta, 2017). The standard agronomical practices were adopted for healthy crop development.

Data Collection

Five plants were randomly selected from each plot and their average value used for statistical analysis. Days of 50% flowering, days of 85% flowering, plant height, lodging, panicle length, number of panicle per hill, tillers per hill, thousand grain weight, grain yield (t ha⁻¹) and aroma were recorded.

Rice Aroma

Scent (aroma) in rice evaluated by score 0, 1 and 2. Scent (aroma): Scent detected at flowering time as organoleptic. Three classes are recognized: (0) non-scented, (1) lightly scented and (2) scented.

Lodging Effect

Lodging in rice was score from 1 to 7. Lodging score: 1 indicate no lodging (plants are vertically upright), 3 indicate only few <10% plants fall in ground, 5 indicate Half to majority of the plants fallen in ground and 7 indicate plant in whole plot in horizontal stage.

Statistical Analysis

Analysis for mean and standard deviation was done by using Gene Stat (15th Ed). Analysis of Variance (ANOVA) was used to assess genotypic effect and check if the mean of two or more treatments significantly different from each other by the least significant difference (LSD) test at 5% level of significance.

Estimation of Genetic Parameters

The genetic parameters; phenotypic coefficient of variation (PCV) and genotypic coefficient of variation (GCV) were derived using the formula, suggested by Burton and Devane (1953).

PCV and GCV values were categorized low, moderate and high indicated by Subramanian & Menon, (1973) as follows:

0–10% regarded as Low, 10–20% regarded as Moderate and >20% as High.

Broad Sense Heritability (hbs^2)

Broad sense heritability was derived for characters using variance components as explained by DeLacy *et al.*, (1996). The heritability estimate was categorized as low, moderate and high as followed by Robinson *et al.*, (1949), which is given as 0–30% Low, 30–60% Moderate and >60% High.

Genetic Advance (GA)

The extent of genetic advance to be expected by selecting about five percent of the genotypes was calculated by using the following formula given by Robinson *et al.*, (1949).

Genetic Advance as Percent of Means (GAM)

The GA as percent of mean was categorized as low, moderate and high as suggested by Johnson *et al.*, (1955) as 0-10% is Low, 10-20% is Moderate and >20% is High.

Results and Discussion

Days to 50% of Flowering

The results indicated that there is highly significant variation for days to 50% flowering. The average mean days to 50% flowering was found to be 63.82. The check variety HH1 significantly had lower number of flowering days followed by NR 973. PB1121 was recorded highest for days to 50% flowering which was statistically at par with Pusa Basmati 1. (Table1) Puri *et al.* (2021) also reported highly significant differences for days to flowering with HH1 among different eight genotypes of rice in the research conducted at Baniyani, Jhapa.

Days to 85 % Grain Maturity

Highly significance variation was found for Days to 85% grain maturity. The mean day to 85% grain maturity found to be 95.24 days. The check variety Hardinath hybrid-1 matures in 91 days. HH1 significantly mature at lower number of days followed by Rajendra Bhagawati while PusaBasmati-1 was found to mature on delay followed by PB 1121 (98.67 days) and Bahuguni 1 (98.33 days) as mentioned in Table 1

Similar trend on Chaudhary et al. (2012) found maturity on 95 to 108 days to local varieties at Nepalgunj climatic condition.

Panicle Length and Plant Height

The variety NR 973 was found significantly to be highest panicle length with 31.37 cm which was statistically *at par* with variety HH1, Pant dhan-2 and Pusa Sugandha-5 with 30.4 cm, 30.07 cm and 29.57cm respectively. The average mean of length of panicle was found to be 27.62cm. Similarly, Maximum height was found on NR 973 and PB1509 produced statistically less height 122.5cm. (Table 1) From this supporting research Ghasal et al. (2015), they found that the longer panicles in ‘Pusa Rice Hybrid 10’ and ‘Pusa Sugandh 5’ led to produce significantly more panicle weight and grain weight/panicle than the other varieties. Similarly, this result was supported by Ghasal et al. (2015) research where at maturity, ‘Pusa Basmati 1121’ with height 108.1cm had the tallest plants, being at par with ‘Pusa Rice Hybrid 10’ (103.4 cm), ‘Pusa Sugandh 5’ (102.2) and ‘Pusa Basmati 1401’ (101.8cm) remained significantly taller than ‘Pusa Basmati 1509’ (94.7cm) and ‘Pusa Basmati 1460’ (98.6cm).

Number of Panicle/Hills

The statistical result shows that varieties had significantly influenced in the number of panicles per hill. The average mean of number of panicles/hills was found to be 12.43 per hill. The variety PB 1121 is suitable for producing more panicle (15.73 per hill) followed by Pusa Basmati-1 (14 per hill). The lowest number of panicles per hill was recorded on Pant dhan-2 (7.73 per hill). This shows number of panicles/hill is influenced by genotypes and have effect on yield. (Table 1) Highly significant difference was obtained in number of panicle per hill by Simten and Aydin (2010). Similarly, Khan et al. (2006) conducted research with four varieties of rice and he obtained 9.2 to 18 panicles per plant in his study.

Number of Tillers/Hills

Statistically highly significant difference was found. The average mean of Number of tillers was found to be 13.95 per hill. The genotype PB1121 significantly found to have maximum number of tillers (16.87 per hill) followed by Pusa Basmati-1 (16.07 per hill). The genotype Pant dhan-2 was found to have a smaller number of

tillers (10.27 per hill). The check variety was found to have 13.97 tillers per hill as mentioned in Table 1.

Islam et al. (2017) found significant difference among the rice varieties regarding number of tillers per hill in three varieties BINA dhan7, BRRI dhan56 and BRRI dhan62 in which BRRI dhan 56 have maximum number of tillers per hill followed by BRRI dhan 62 and BINA dhan 7 *at par*. Differences in the production of total tillers and effective tillers hill⁻¹ might be due to variation on genetic, physiological functions and growth characters of the cultivars under study. Similarly, Soheli et al. (2009) and Howladar et al. (2017) also reported that all the yield and yield contributing characters differed significantly due to varietal differences.

Grain Yield (t ha⁻¹)

Yield is one of the most important traits in rice. It is regulated by quantitative trait loci genes and influenced by external environmental factors (Zhang et al., 2008). The statistical result revealed that the effect of different rice varieties had significant ($p < 0.05$) influenced on the grain yield. The average mean yield was found to be 5.03 t ha⁻¹. The maximum grain yield was found on genotype Bahuguni-1 (6.989 t ha⁻¹) followed by PB 1509 (6.533 t ha⁻¹) in compare to check HH1 (6.496 t ha⁻¹) and minimum was found on genotype NR 973 (3.290 t ha⁻¹) which was statistically at par with Rajendra Bhagwati (3.628 t ha⁻¹). When the yield of different long grain Rice genotypes was compared, similar result was found on grain yield of Hardinath3, Cerhrang Sub1, Bahuguni 1, Bahuguni 2 and Radha 4 in two district Kailali and Kanchanpur under on farm Varietal demonstration, they found highest yield in Bahuguni 2 (5.1 t ha⁻¹ in Kailali and 4.94 t ha⁻¹ in Kanchanpur) (Beshir, 2019). Grain yield (6.215 t ha⁻¹) of Hardinath hybrid-1 was obtained at Jhapa (Puri et al., 2021). According to Jadhav et al. (2019), G x E interaction effect shows that genotypes perform differently to the variation in environmental condition and most of traits were contributed mainly due to genotype followed by environment and their interaction. The variation in biological yield was also found due to the variation in grain and straw yield according to Hossain et al. (2014b). This statement also supports observation.

Thousand Grain Weight and Sterility Percentage

The maximum thousand grain weight was found on genotype PB 1509 (31.89g) due to large size grain which was statistically at par with PusaBasmati-1 (31.51g). The minimum thousand grain weight was found on Sarbati (19.86 g). The average mean thousand grain weight was found to be 28.41g (Table 1). Islam et al. (2013) stated that significant variation in thousand grain weight due to the variation in genetic makeup of the variety. Similarly, PusaBasmati1509 rice showed the highest fertility percentage (87.6g), and the lowest chaffy grains/panicle, followed by 'Pusa Basmati 1121' and

‘Pusa Sugandh5’ (Ghasal et al. 2015). The maximum unfilled grains decreased the final yield as well as minimum unfilled grains increases the grain yield.

Table 1

Yield Attributes of 11 Rice Genotype in Study Site

Rice genotypes	50F	85M	PL (cm)	PH (cm)	PPH	TILL	Yd (t ha ⁻¹)	TGW (g)	S(%)
Sarbati	63.33cde	93.00de	24.57c	139.2bc	10.80bc	13.47bcd	3.781bc	19.86 d	23.02
Pusa Sugandha-5	61.00def	93.67 bcde	29.57a	126.2ef	11.60b	12.20de	4.201 bc	30.65ab	29.33
Rajendra Bhagawati	61.00cdef	92.67 de	27.10b	128.4def	10.53bc	12.07 de	3.628 c	28.23abc	27.58
Pusa Basmati-1	68.67a	99.67 a	26.40bc	141.6bc	14.00ab	16.07 ab	5.975abc	31.51 a	32.28
PB 1121	69.33a	98.67ab	27.53b	137.7bcd	15.73 a	16.87a	5.751abc	30.63ab	29.50
Dejgora	65.67abc	96.00abcde	25.77bc	146.8ab	13.80ab	15.80ab	4.473abc	24.01 cd	25.20
Pant dhan-2	63.67cd	97.33abcd	30.07a	144.5ab	7.73 c	10.27 e	4.178bc	28.93 ab	39.51
NR 973	59.00ef	93.33 cde	31.37a	153.9a	12.80ab	12.53 cde	3.290 c	26.05 bc	29.57
Bahuguni-1	68.33ab	98.33abc	26.40bc	127.5ef	12.87ab	14.00abcd	6.989a	30.43 ab	23.79
HH1 (Check)	58.00f	91.00 e	30.40a	133.8cde	13.97ab	15.47abc	6.496ab	30.30ab	31.73
PB1509	64.00bcd	94.00 bcde	24.63c	122.5 f	12.87ab	14.77abcd	6.533 ab	31.89 a	27.76
Grand Mean	63.82	95.24	27.62	136.55	12.43	13.95	5.03	28.41	29
Sem(±)	2.018	2.198	0.953	4.41	1.492	1.296	1.167	2.054	7.75
LSD(0.05)	4.21	4.585	1.987	9.199	3.113	2.704	2.435	4.284	—
F-test	**	**	**	**	*	**	*	**	Ns
CV (%)	3.9	2.8	4.2	4	14.7	11.4	28.4	8.9	—

Note. **=significant at P<0.01. *=significant at P<0.05. Indicate significantly different at 1% and 5% respectively, Different letters represent significant differences based on LSD test at p<5%, CV: Coefficient of variation, LSD: Least significant difference. NS: Non-significance Indicators, 50F= days to 50% flowering, 85M= Days to 85% maturity, PH= plant height (cm), PL = Panicle length (cm), TILL= number of tillers per hill, PPH= number of panicles per hill, TGW = thousand grain weight (g), Yd= yield (t ha⁻¹) and S(%)=sterility(%)

Correlation Coefficient Analysis

In Table 2, the result shows positive correlation between grain yield and traits such as days to 50% flowering, thousand grain weight, number of panicles per hill, number of tillers per hill and Days to 85% maturity whereas negative correlation

between grain yield and traits such as panicle length, plant height and sterility were observed. The number of panicles per hill contribute approximately 28.87% ($R^2=0.2887$) on grain yield. Similarly, approximately 38.22% ($R^2=0.3822$) contribution was given by Number of tillers per hill on grain yield. Again, thousand grain weight input about 40.64% ($R^2=0.4064$) share on grain yield and left over 59.36% increase in grain yield was due to other variables except thousand grain weight. There was positive correlation of thousand grain weight and number of tillers per hill with grain yield. Chakraborty et al. (2010) reported highly positive correlation of thousand grain weight with grain yield. With increase in number of tillers per hill, thousand grain weight increment, Number of panicles per hill, grain yield also has increment. Similarly, grain yield had positive correlation with Days to 50% flowering ($R^2=0.2043$) and days to 85% maturity ($R^2 = 0.1213$). In relation with days to 50% flowering Madhavalatha et al. (2005) reported similar results.

Table 2

Correlation Coefficient between Traits under Selection

	50F	85M	PH	PL	TILL	PPH	HPP	TGW	Yd
50F	1								
85M	.909**	1							
PH	-0.030	0.178	1						
PL	-0.574	-0.232	0.346	1					
TILL	0.493	0.291	-0.025	-0.408	1				
PPH	0.342	0.206	0.000	-0.156	.919**	1			
HPP	-0.026	-0.004	0.509	0.004	-0.397	-0.372	1		
TGW	0.191	0.314	-0.495	0.222	0.167	0.255	-.711*	1	
Yd	0.502	0.407	-0.350	-0.263	0.445	0.373	-0.041	0.410	1

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

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

50F= days to 50% flowering, 85M= Days to 85% maturity, PH= plant height (cm), PL = Panicle length (cm), TILL= number of tillers per hill, PPH= number of panicles per hill, HPP = hills per plot, TGW = thousand grain weight (g), Yd= yield (t ha⁻¹)

Negative correlation was found on grain yield with panicle length and plant height and concludes that grain yield is reducing due to tall trait in rice. This may due to extension of vegetative growth stage than that of reproductive stage so selection can be done for semi dwarf genotypes. Also, Genotypes taking more days for 50% flowering

and variety require more days for maturity have ultimately maximum grain yield (Hairmansis et al. 2010). Thus, for better crop improvement and breeding programs traits such as days to 50% flowering, number of tillers per hill, number of panicles per hill, thousand grain weight is to be considered in selecting genotypes having highly positive and significant correlation coefficient.

Phenotypic and Genotypic Coefficient of Variation

The highest variability for both GCV and PCV was estimated for grain yield (43.10 and 51.62). Traits like days to 50% flowering and days to 85% grain maturity had low value of both GCV and PCV. The difference between GCV and PCV ranged from 0.59 to 8.52. The result of present study closely agreed with previous report where, GCV and PCV high for effective tillers per m², thousand grain weights, grain yield, harvest index (Gyawali et al., 2018). In general, PCV is higher than GCV for all the traits. There is maximum difference between PCV and GCV in grain yield, moderate difference in traits tiller per hill and panicle per hill and other traits have small difference between PCV and GCV. The genetic variation showed that phenotypic coefficient of variation was relatively higher than genotypic coefficient of variation results, it revealed that the influence of environment on phenotypic expression of each traits (Adhikari et al., 2018).

Heritability

The considerable differences in differences in heritability value for different characters were observed. Among observed characters under study, panicle length (92%) had highest value of heritability followed by plant height (90%). Traits like days to 50% flowering (87%), thousand grain weight (86%), tiller per hill (82%), panicle per hill (79%) and days to 85% maturity (75%) shows high heritability estimates. The heritability of grain yield (69%) exhibits the lowest one among observed traits. Similar result showed on report of Kishore *et al.*, (2015) where highest heritability found on plant height, panicle length and moderate heritability on tiller per hill.

Genetic Advance as Percentage of Mean

The genetic advance as percentage of mean at 5% selection intensity revealed remarkable differences among the traits under study. Yield per hectare shows the highest genetic advances as per percentage of mean (74.12%) among the entire traits. Similarly, panicle per hill (53.36%) and tiller per hill (45.81%) exhibits high genetic advance as percentage of mean. Likewise, genetic advances as percentage of mean were found to be moderate for thousand grain weight (42.13%), panicle length (29.10%), and plant height (24.01%). Genetic advance as per percentage of mean was found lowest for days to 50% flowering followed by days to 85% grain maturity (8.92%).

These findings agreed with Sharma et al. (2015) where genetic advance as percentage of mean was found higher in trait yield per hectare followed by thousand grain weight, days to 50% flowering and days to 85% grain maturity.

Table 3

Heritability of 8 Characters of 11 Genotypes

Variables	GCV	PCV	h^2_{bs}	GA	GAM
50F	10.30	11.00	0.87	12.68	19.87
85M	4.98	5.72	0.75	8.50	8.92
PH	12.25	12.87	0.90	32.79	24.01
PL	14.70	15.29	0.92	8.03	29.10
TILL	24.51	27.03	0.82	6.39	45.81
PPH	29.03	32.54	0.79	6.63	53.36
TGW	22.04	23.75	0.86	11.96	42.13
Grain yield ($t\ ha^{-1}$)	43.10	51.62	0.69	3.72	74.12

Note. h^2_{bs} – heritability in the broad sense, GCV – genotypic coefficient of variation, PCV – phenotypic coefficient of variation, GA – genetic advance at 5% intensity of selection, GAM – genetic advance as per cent of mean. 50F= days to 50% flowering, 85M= Days to 85% maturity, PH= plant height (cm), PL = Panicle length (cm), TILL= number of tillers per hill, PPH= number of panicles per hill and TGW = thousand grain weight (g)

Lodging Effects

In this research on Banke district, Sarbati and Dejgora have maximum lodging effect. Other was not found on lodging condition in any growing stages. However, losses were not heavy due to lodging effects on these genotypes.

Rice Aroma

PB 1509 and Rajendra Bhagawati were found scented. The lightly scented genotypes were Sarbati, Pusasugandha5, NR973 and PusaBasmati1. Non-scented genotypes were Bahuguni-1, HH1, Dejgora, PB 1121 and Pant dhan. Rice with more aroma is preference in recent trend. Thus, PB 1509 is indispensable in further research program.

Conclusion

The genotype Bahuguni-1 and PB 1509 yielded high for their *per se* performance. Thousand grain weights and number of panicle per hill were also higher for these two

genotypes and these characters were highly associated with grain yield. Genotypic coefficient of variation and genetic advance as percentage of mean estimation also supported the utilization of thousand grain weights and number of panicle per hill in rice breeding program through indirect selection in addition to direct selection for grain yield. Thus, exploitation of PB1509 in further yield trial will contribute to national rice breeding programs of Nepal.

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Response of Nutrient Omission on the Performance of Rapeseed at Parwanipur, Bara, Nepal

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Abstract

The field experiment was conducted to study the effect of nutrient on growth, yield and yield attributes of promising rapeseed genotypes, and assess the economics of nutrient management in Strip Plot Design at the station of Directorate of Agricultural Research, Parwanipur, Bara during winter season of 2019 with two rapeseed genotypes (Morang Tori 2 and ACC 9109) in horizontal stripe and six combination of nutrient doses of NPKS (60:40:20:20 kg NPKS/ ha (N1), 0:40:20:20 kg NPKS/ ha (N2), 60:0:20:20 kg NPKS/ha (N3), 60:40:0:20 kg NPKS/ ha (N4), 60:40:20:0 kg NPKS/ ha (N5) and 0:0:0:0 kg NPKS/ ha. (N0) in vertical strip with three replications. The results revealed that at N1 treated plot the plant height at 30 DAS (64.53 cm), 60 DAS (84.22 cm), 90 DAS (104.62 cm, no. of primary (8.50) and secondary (41.50) branches, siliquae/ plant (138.15), seed/siliqua (15.33), test weight of seed (3.45 gm), yield (1072.5 Kg/ha.), B: C ratio (1.94) were higher as compared to control treatment or N0. The interaction of ACC 9109 and 60:40:20:20 Kg NPKS/ha gives highest yield (1343 Kg/ha) with highest B: C ratio of 2.442 and interaction of ACC 9109 and control plot (315 Kg/ha) gives lowest yield with B: C ratio of 0.882. It was concluded that the cultivation of ACC 9109 with 60:40:20:20 Kg NPKS/ha can improve crop growth, grain yield and profitability of rapeseed in Parwanipur, Bara, Nepal.

Keywords: genotypes, nutrient omission, productivity

Introduction

Oil seed crop is third most important crop in Nepal after cereals and pulses occupying 8.421% of total cultivated area in Nepal (MOALD, 2020). *Terai* and *inner terai* region covers 77% of the total oilseed crop area followed by hills (21%) and the mountain (2%) (Tari, 2016). In the year 2075/76, the total cropped area under oilseed crop is 2, 60,307 ha. with total production of 2, 80,530 mt and an average yield of 1.08 mt/ha (MOALD, 2020). The total cropped area under rapeseed is 169769 ha. with total production of 1,71,499 mt and an average productivity of 1,010 kg/ha (MOALD, 2017). Oilseed form a main source of energy and fat. Among many oil seed crops, rapeseed (*Brassica campestris L. vartoria*) (Local name: tori) is one of the most important crop in Nepal and farmers prefer it as catch crop, cover crop, inter crop and relay crop. It is also grown as mixed crop with wheat, lentil, linseed, chickpea etc. Due to lagging research efforts to increase the oil seed yield, the yield level in the farmer's field is far below than the varietal yield potential. The potential yields, IAAS Station yield and farmer's field yield of rapeseed and mustard are 1.1 t/ha, 1.00 t/ha and 0.71t/ha respectively. The yield gaps between the potential and farmers' field yield is 0.39 t/ha, the yield gap between potential and research station yield is 0.1 t/ha and the yield gap between research station and farmers' field yield is 0.29 t/ha (Amgain et al., 2005). Among the various factors responsible for lower production of rapeseed and mustard, the choice of proper cultivars suited to the agro-eco-zone and various agronomic management factors including poor nutrient management practices are the prime ones. In the context of Nepal, the varieties available are not of remarkable quality with low yield and not adaptable to wider location. In addition, there is availability of few numbers of improved genotype of rapeseed and only 5% area is cultivated under improved rapeseed genotype (NORP, 2001). Most of the farmers use high amount of chemical fertilizer haphazardly since there is little information available on NPK requirement for oil seed crop production in Nepal. The oilseed production systems in our country is mainly affected by mainly two factors, first the ignorance of farmers to this crop and regarding oilseed as secondary crop as compared to major crops (rice, wheat and maize). Research done at National Oilseed Research Program, Nawalpur, Sarlahishows low or no use of fertilizer and manures, declining inherent soil fertility and imbalance use of NPK decreases 29.48% of yield of Toria (Ghimire, 2003). Similarly, studies of nutrient management done in terai and inner terai conditions of Nepal showed that among all the inputs, the chemical fertilizer has an important place in tori production (Ghimire et al., 2001; Chaudhary and Mishra, 2008). This crop has a wide dimension in terms of its need, economy, industry, and day to day consumption but still it is most neglected crop and less effort is made for its research and varietal evaluation. Fertilizer is considered as an important factor which has a huge

impact on sustainable agriculture (Roelck et al., 2004). The yield response is related to indigenous nutrient supply which determines the yield in omission plots (Dobermann et al., 2003). Knowledge of soil capacity to supply major nutrients N, P, K and other nutrients is the pre-requisite regarding increasing yield and nutrient use efficiency of crops. Recommended doses of fertilizer will not be suitable in all fields and at the same time a large variability in soil nutrient supplying capacity exists among field. The nutrient omission plot technique is basically a practice in which we fertilize a plot with adequate amount of nutrient and at the same time in similar condition another plot is let unfertilized or in control so as to study the indigenous supply of nutrient in the field/ soil fertility (Regmi et. al., 2002; Dobermann, 2003).

The broad objective of this study is to enhance the productivity of promising rapeseed genotype using the appropriate nutrient management condition. The specific objectives are:

1. To study the growth, yield attributes and yield of promising rapeseed genotype,
2. To study the nutrient use efficiency,
3. To find out the economics of nutrient management.

Hypothesis

Null hypothesis: There is no significant difference on productivity of rapeseed genotypes under different nutrient management condition.

Alternate hypothesis: There is significant difference on productivity of rapeseed genotype under different nutrient management condition.

Materials and Methods

The experiment was carried out at the station of Directorate of Agricultural Research, Parwanipur, Bara district during the winter season (October 2019 to February 2020). Each plot was designed to maintain 3 m width and 5 m length. Each plot contained 10 rows in 15 m² area. Row to row spacing of 50cm was applied and continuous sowing was done on lines (50cm × continuous). The space between the treatments was 0.5 m and space between the blocks was 1 m. The experiment was replicated thrice in stripe plot design having plot size of 15 m². Two genotypes of rapeseed i.e. Morang Tori 2 and ACC 9109 were allocated in horizontal strip and six different nutrient doses of NPKS in vertical strip i.e. N1(+NPKS)= 60:40:20:20 kg NPKS/ ha, N2 (-N)= 0:40:20:20 kg NPKS/ ha, N3(-P)= 60:0:20:20 kg NPKS/ha, N4(-K)= 60:40:0:20 kg NPKS/ ha, N5(-S)= 60:40:20:0 kg NPKS/ ha, N0(-NPKS)= 0:0:0:0 kg NPKS/ ha. Sowing was done manually on 26th October, 2019. Cultural practices like Pre-emergence weedicide Pendimethalin 30% EC @ 0.75 kg a.i/ha was

applied at the time of sowing and light irrigation was done at pre-blooming period. Half dose of urea (46% N) and full doses of single super phosphate (16% P_2O_5), muriate of potash (60% K_2O) and Sulphur powder (90% S) was applied at the time of sowing while remaining half dose of urea was top dressed at 25 DAS. Ten plants were tagged for taking phenological observations. The days to flowering was recorded from the date of sowing, when 75% plants in each plot got 1st flower initiation stage. Similarly, days to maturity was recorded when the 75% of the plant undergone physiological maturity. Biometric observation such as plant height, number of primary and secondary branches per plant were measured three times at 30 days interval such as 30, 60 and 90DAS from randomly selected 10 plants per plot. Number of siliquae per plant was counted from randomly selected ten plants after harvest from net plot and averaged. Number of seeds per silique was counted from the selected 20 siliquae harvested from net plot and averaged. Manual harvesting was done. Dried seeds (8% moisture content with the help of moisture meter) of each plot was weighed and subsequently converted into yield kg/ha. Thousand Grain weight was determined by weighing 1000 seeds with the help of electronic balance from each plot. Partial factor productivity and total factor productivity were calculated. Economic analysis was done by calculating cost of cultivation, gross return, net return and benefit: cost ratio. Analysis of Variance (ANOVA) for all recorded parameters was done using MS-Excel and GenStat version 18 Software.

Results and Discussion

Plant Height

The results showed that at 30 DAS, superiority in plant height was obtained by attaining the height of 64.53 cm in N1 (+NPKS) followed by 58.37 cm in N3 (-P). Plant height was lowest at control plot N0 (34.07cm). At 60 DAS the plant height was maximum at N1 (+NPKS) (84.22cm). Shortest plant height of 48.08cm was obtained control plot. At 90 DAS, height of plant was maximum in N1 or +NPKS (104.62). Shortest plant height of 62.25cm was obtained in N0. In fully fertilized plot with required amount of NPKS, the increase in cell elongation, cell division, vegetative growth and increment in plant height is attributed to the balanced nutrition (Kamrunnahar et al., 2017). Whereas, the shortest plant height in unfertilized plots might have been due to low soil fertility level in the study area. The results shows that if any of the nutrient is less than its threshold level in the soil, retardation in plant height is seen (Landon, 1991).

The results of interaction effect on plant height shows that, at 30 DAS and 60 DAS there was no significant difference on plant height while, at 90 DAS the interaction effect has highly significant difference on plant height. Statistically superior

plant height was found in interaction of ACC 9109 and 60:40:20:20 Kg NPKS/ha while inferior plant height was found in interaction of Morang Tori 2 and control plot (-NPKS).

Days to Flowering and Days to Maturity

There was significant difference in Days to flowering due to nutrient doses. The Days to flowering was found statistically superior in N0 or in control plot (51.33) followed by N1 or +NPKS (42.17) but was statistically par at N2 or –N plot (41.17), N3 or –P (40.83), N4 or –K plot (40.83) and N5 or –S plot (40.83). The varieties does not show any significant difference in Days to flowering. Gibberellic acid is the main component for flowering and P levels were positively correlated with gibberellin levels. P is also responsible in synthesis of energy rich compound i.e. ADP and ATP which are responsible to metabolic activities in plants. Similarly, K is responsible for translocation of carbohydrates and from source (photosynthetic part) to apical meristem and flower buds (Eshghi & Tafazoli, 2006).

The maximum days to maturity was found in control plot or –NPKS (109.83) followed by N4 or –K plot (99.83) and N5 or –S plot (96.83). The Days to maturity was statistically at par in N3 or –P plot (94), N1 or –N plot (92.17) and N2 or –N plot (91.83). Increase in day to maturity with N rate may be that N promotes more vegetative growth and thus, the crop continue to grow for a long time in the field. In nitrogen omitted plot there is less vegetative growth where maturity arises faster (91.83) Kutcher et al. (2005).

The highest day to flowering (delay in flowering) was found in interaction of Morang Tori 2 and control plot (55.67 days) while least day to flowering (early flowering) was found in interaction of Morang Tori 2 and 60:0:20:20 Kg NPKS/ha (39.67 days) which was statistically similar to interaction on Morang Tori 2 and 60:40:0:20 Kg NPKS/ha (39.67 days).

Results depicts significant difference on Days to maturity due to interaction. Interaction of ACC 9109 and control plot shows highest day to mature (110 days) while least days to mature (90.67 days) was found in interaction of Morang Tori 2 and 60:40:20:20 Kg NPKS/ha.

Table 1

Effect of Genotypes and Nutrient Doses on Plant Height, Days to Flowering and Days to Maturity of Rapeseed at during Winter, 2019 at the Station of Directorate of Agricultural Research, Parwanipur, Bara

Factors	Plant height at 30DAS	Plant height at 60DAS	Plant height at 90DAS	Days to flowering	Days to maturity
Genotype (a)					
Morang Tori 2	51.58	65.10	85.40	43.22	97.17
ACC 9109	50.59	68.03	87.00	42.56	97.67
SEm _a (±)	0.574	1.48	0.354	0.297	0.18
LSD _a	3.49	9.01	2.15	1.805	1.095
CVa (%)	1.9	3.9	0.7	1.2%	0.3
F-test (a)	NS	NS	NS	NS	NS
Fertilizer (b)					
+NPKS 60:40:20:20 (N1)	64.53 ^a	84.22 ^a	104.62 ^a	42.17 ^b	92.17 ^d
-N 0:40:20:20 (N2)	53.53 ^b	65.25 ^{bc}	82.83 ^c	41.17 ^b	91.83 ^d
-P 60:0:20:20 (N3)	58.37 ^b	70.32 ^b	88.50 ^b	40.83 ^b	94.0 ^d
-K 60:40:0:20 (N4)	52.23 ^b	71.75 ^b	89.50 ^b	40.83 ^b	99.83 ^b
-S 60:40:20:0 (N5)	44.03 ^c	59.07 ^c	89.50 ^b	40.83 ^b	96.83 ^c
-NPKS 0:0:0:0 (N6)	34.07 ^d	48.8 ^d	62.25 ^d	51.33 ^a	109.83 ^a
SEm _b (±)	1.887	2.17	0.87	0.421	0.70
LSD _b	5.94	6.85	2.77	1.325	2.209
CVb (%)	6.4	5.7	1.8	1.7%	1.2
F-test (b)	**	**	**	**	NS
Interaction (c)					
SEm _c (±)	2.5	2.8	1.172	0.599	0.91
LSD _c	7.39	8.62	3.44	1.794	2.696
CVc (%)	9.1	4.8	2.4	2.1%	1.7
F-test (c)	NS	NS	**	**	*
Grand mean	51.13	66.57	86.20	42.89	97.42

Mean followed by common letter(s) within each column are not significantly different; NS= non-significant, * = significantly different at 5%, ** = significantly different at 1%, SEm= Standard Error Mean, LSD=Least Significant Difference, CV= Coefficient of Variation

Yield Attributes and Yield

Number of Primary and Secondary Branches

Morang tori 2 has more number of primary branches (6.17) than ACC 9109 (4.72). The secondary branches are more in ACC 9109 (29.44) than Morang tori 2 (16.78). On the basis of observed results, statistically superior primary branches was found in N1 or +NPKS plot (8.50) followed by N2 or –N plot (6.00) and inferior in N0

or control plot (3.333).

The number of secondary branches differs with application of different doses of nutrients and the variation obtained in research varied from highest branches in N1 (41.50) and lowest branches in N6 (6.67).

Phosphorus is known for better rooting in plants and in –P plots, its deficiency may have retarded rooting and thus transport of nutrients decreases which hinder the formation of branches.

Siliquae Per Plant and Seed Per Siliqua

Least and highest number of siliquae was recorded in N0 or –NPKS plot (47.50) and N1 or +NPKS plot (138.15). The number of siliquae per plant being less in phosphorus omitted plot may be due to the reason that P is mainly responsible for better rooting, formation of flower buds, formation of root, structure or architecture of root, activity of root i.e. absorption of nutrients (Williamson *et al.*, 2001) from the soil resulting in formation of reproductive structure and siliquae development.

Highest number of seed was recorded in N1 or +NPKS plot (15.33) and least number of seed was recorded in N0 or –NPKS plot (10.00). Seed of rape is mainly a fat globule with much oil content than protein. It has been observed that increasing sulphur application increases oil, and glucosinolates of seeds (Haneklaus *et al.*, 1999).

Test Weight and Yield

The highest test wt. was found in +NPKS (3.45 gm) and lowest in –NPKS (2.96 gm). The test wt. at –P, -K, -N, and –S were statistically at par having values of 3.248 gm, 3.240 gm, 3.212 gm, and 3.272 gm respectively. The results depicts that Nitrogen has major role in 1000 seed weight.

ACC 9109 produces 886 kg/ha and morang tori 2 produces 513 kg/ha. The highest seed yield was obtained in N1 or +NPKS plot i.e 1072.5.8 kg /ha. The lowest seed yield was obtained in N6 (315.5 kg/ha). With the application of recommended NPKS fertilizer could be due to their combined positive effects. This response might be ascribed to adequate supply of these nutrients that resulted in higher production of photosynthates and their translocation to sink (Rana *et al.*, 2005). The interaction effect of genotype and nutrient management was significant on yield and yield components of rapeseed. The highest number of secondary branches (51.33), number of siliquae per plant (152.67), seeds per siliqua (15.6) and yield (1343 Kg/ha) were recorded in the interaction between ACC 9109 and +NPKS (60:40:20:20 Kg NPKS/ha). The lowest values of these parameters secondary branches (7.67), seeds per siliqua (10) and yield (315 Kg/ha) were found in the interaction between ACC 9109 and control plot or (-NPKS) while siliquae per plant was lowest in interaction of Morang Tori 2

and control plot. But primary branches were found maximum (10.3) in the interaction between Morang Tori 2 and +NPKS (60:40:20:20 Kg NPKS/ha) and minimum (3.33) in interaction of Morang Tori 2 and control plot which is similar to ACC 9109 and control plot interaction. There was no significant effect on test weight due to interaction.

Table 2

Effect of Genotypes and Nutrient Doses on Yield and Yield Attributing Characters of Rapeseed during Winter, 2019 at the Station of Directorate of Agricultural Research, Parwanipur, Bara

Factors	Primary branches	Secondary branches	Siliquae/plant	Seed/Silique	Test wt (gm)	Yield (kg/ha)
Genotype (a)						
Morang Tori 2	6.17	16.78	83.16	13.27	3.153	513
ACC 9109	4.72	29.44	90.72	13.16	3.311	886
SEm _a (±)	0.196	1.124	1.851	0.078	0.032	14.2
LSD _a	1.195	6.841	11.26	0.478	0.19	86.4
CVa (%)	6.2	8.4	3.7	1.0	1.7	3.5%
F-test (a)	*	*	NS	NS	NS	*
Fertilizer (b)						
+NPKS 60:40:20:20 (N1)	8.50 ^a	41.50 ^a	138.15 ^a	15.33 ^a	3.45 ^a	1072.5 ^a
-N 0:40:20:20 (N2)	6.00 ^b	21.00 ^c	84.33 ^{bc}	14.33 ^b	3.212 ^b	638.2 ^c
-P 60:0:20:20 (N3)	4.50 ^c	20.33 ^c	79.00 ^c	13.33 ^c	3.248 ^b	731.7 ^b
-K 60:40:0:20 (N4)	4.83 ^c	20.33 ^c	85.33 ^b	13.33 ^c	3.240 ^b	699.7 ^{bc}
-S 60:40:20:0 (N5)	5.50 ^{bc}	28.83 ^b	87.33 ^b	13.33 ^c	3.272 ^b	738.5 ^b
-NPKS 0:0:0:0 (N6)	3.33 ^d	6.67 ^d	47.50 ^d	10.00 ^d	2.96 ^c	315.5 ^d
SEm _b (±)	0.306	0.98	1.887	0.187	0.039	22.1
LSD _b	0.964	5.953	5.94	0.591	0.12	69.6
CVb (%)	9.7	7.3	3.8	2.5	2.1	5.5
F-test (b)	**	**	**	**	**	**
Interaction (c)						
SEm _c (±)	0.473	1.942	3.024	0.254	0.063	33.0

LSD _c	1.395	0.9459	9.413	0.748	0.19	97.6
CV _c (%)	16.7	16.1	5.1	3.5	3.6	8.6
F-test (c)	*	*	**	*	NS	**
Grand mean	5.44	23.11	86.94	13.222	3.232	699

Mean followed by common letter(s) within each column are not significantly different; NS= non-significant, * = significantly different at 5%, ** = significantly different at 1%, SEm= Standard Error Mean, LSD=Least Significant Difference, CV= Coefficient of Variation

Economics of Rapeseed

Cost of cultivation was highest (Rs. 38514 thousand/ha) in no nutrient omission (+NPKS or N1) plot and least in –NPKS or N0 treatment (Rs. 25000 thousand/ha). The highest B: C ratio was found to be 1.94 from full dose of NPKS (N1) and the lowest BC ratio was 0.88 obtained from 0 NPKS (N0). The gross return was highest (Rs. 75075 thousand/ha) in no nutrient omission (+NPKS or N1) treatment and least in –NPKS or N0 treatment (Rs. 22085thousand/ha). On account of lower grain yields, unfertilized (-NPKS) treatments were unprofitable as evident from the losses in net income (Rs. -2915 thousand/ha) that was reflected in Benefit Cost ratio < 1.00 values (0.88). Gross return and net returns were recorded as higher for ACC 9109 (NRs. 62004 thousand/ha and 27995 thousand/ha respectively) than Morang Tori 2 (NRs. 35902 thousand/ha and 1893 thousand/ha respectively) making greater B: C ratio for ACC 9109 (1.77) than Morang Tori 2 (1.04).The interaction of genotype and nutrient management practices was found to be significant for cost of cultivation, gross return, net return and BC ratio.

Total Factor Productivity (TFP) and Partial Factor Productivity (PFP) of Rapeseed

High PFP and TFP was recorded in ACC 9109 having values of 2.83 and 0.080 respectively as compared to Morang Tori 2 having values of 1.57 and 0.044 respectively. Highly significant results were accorded in partial factor productivity (PFP) and Total factor productivity (TFP) of rapeseed due to nutrients. The results depicted highest PFP at –P (3.94) and the PFP at –NPKS was 0.

Similarly TFP was significantly highest in –P (0.11) and that of –NPKS was 0.

The interaction effect of genotype and nutrient had significant effect on PFP and TFP. The partial factor productivity (4.961) and total factor productivity (0.143) was highest at interaction of ACC 9109 and –P plot (60:0:20:20 Kg NPKS/ha). The TFP and PFP was lowest at interaction of both genotypes and control plot.

Table 3

Effect of Genotypes and Nutrient Doses on Economics, Partial Factor Productivity (PFP) and Total Factor Productivity (TFP) of Rapeseed during Winter, 2019 at the Wtation of Directorate of Agricultural Research, Parwanipur, Bara

Factors	BC	CC	NR	GR	PFP	TFP
Genotype(a)						
Morang Tori 2	1.04	-	1893	35902	1.57	0.044
ACC 9109	1.77	-	27995	62004	2.83	0.080
SEm _a (±)	0.027	0	994	994	0.074	0.0021
LSD _a	0.16	*	4873.7	6048.1	0.19	0.01
CVa (%)	3.4	0	11.5	3.5	5.8	6
F-test (a)	NS	NS	*	*	*	*
Fertilizer (b)						
+NPKS 60:40:20:20 (N1)	1.94 ^a	38514.00 ^a	36561 ^a	75075 ^a	2.70 ^b	0.07 ^b
-N 0:40:20:20 (N2)	1.23 ^d	36165.00 ^b	8507 ^d	44672 ^c	2.50 ^c	0.05 ^d
-P 60:0:20:20 (N3)	1.62 ^b	31514.00 ^c	19703 ^b	51217 ^b	3.94 ^a	0.11 ^a
-K 60:40:0:20 (N4)	1.32 ^{cd}	36849.00 ^b	12128 ^{cd}	48977 ^{bc}	2.04 ^d	0.061 ^c
-S 60:40:20:0 (N5)	1.43 ^c	36014.00 ^b	15681 ^{bc}	51695 ^b	2.03 ^d	0.067 ^c
-NPKS 0:0:0:0 (N6)	0.88 ^e	25000.00 ^d	-2915 ^e	22085 ^d	0 ^e	0.00 ^e
SEm _b (±)	0.047	0	1546.7	1546.7	0.063	0.0017
LSD _b	0.14	*	4873.7	4873.7	0.45	0.005
CVb (%)	5.8	0	17.9	5.5	5.0	4.9
F-test (b)	**	**	**	**	**	**
Interaction (c)						
SEm _c (±)	0.0693	0	2313.4	2313.4	0.1116	0.0033
LSD _c	0.20	*	6829.8	6829.8	0.36	0.010
CVc (%)	9.0	0	28.2	8.6	8.7	8.8
F-test (c)	**	**	**	**	**	**
Grand mean	1.41	34009.33	14944	48953.	2.517	0.06

Mean followed by common letter(s) within each column are not significantly different; NS= non-significant, * = significantly different at 5%, ** = significantly different at 1%, TFP= Total Factor Productivity, PFP= Partial Factor Productivity

Correlation

A positive significant to highly significant correlation of yield of rapeseed with PH60, PH90, no. of siliquae per plant, no. of secondary branches, test weight of seeds and seed per siliqua while yield had positive but non- significant association with PH30 and no. of primary branches. Here, Days to maturity exhibit negative highly significant and Days to flowering exhibit negative significant correlation with yield of rapeseed.

Table 4

Correlation between Yield and Yield Attributing Characteristics of Rapeseed at RARS, Parwanipur, Bara

	PH30	PH60	PH90	DF	DM	Silq/pl.	PB	SB	TW	Seed/ Silq.	Y
PH30	1										
PH60	0.82**	1									
PH90	0.58**	0.68**	1								
DF	-0.49**	-0.57**	-0.87**	1							
DM	-0.69**	-0.60**	-0.76**	0.72**	1						
Silq/ pl.	0.43**	0.45**	0.60**	-0.46**	-0.64**	1					
PB	0.54**	0.35*	0.53**	-0.35*	-0.58**	0.64**	1				
SB	0.32	0.40*	0.59**	-0.40*	-0.55**	0.78**	0.41*	1			
TW	0.18	0.20	0.27	-0.07	-0.24	0.58**	0.17	0.60**	1		
Seed/ silq.	0.61**	0.63**	0.84**	-0.68**	-0.80**	0.71**	0.68**	0.70**	0.30	1	
Y	0.33	0.40*	0.47**	-0.36*	-0.51**	0.73**	0.21	0.88**	0.64**	0.52**	1

Note: Significance at 1% level of probability (**), Significance at 5% level of probability (*), without (*) are non-significant

PH30= plant height at 30DAS, PH60= plant height at 60DAS, PH90= plant height at 90DAS, DF= Days of flowering, DM= Days of Maturity, silq/pl. = siliquae per plant, PB= Number of Primary Branches, SB= Number of Secondary Branches, TW= Test Weight, Seed/silq. = Seed per siliqua, Y= Yield

Conclusion

The results in the study shows that the yield of ACC 9109 was higher as compared to Morang Tori 2, it means that ACC 9109 is good option for farmers. Similarly, the results also revealed that the adopting 60:40:20:20 Kg NPKS/ha nutrient helps to get maximum yield with maximum profit for rapeseed as compared to –N, -P, -K, -S and –NPKS.

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‘कान्छी, भट्टी र देश’ कवितामा मार्क्सवादी चिन्तन

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लेखसार

प्रस्तुत लेखमा कृष्ण सेन ‘इच्छुक’को ‘कान्छी, भट्टी र देश’ कवितालाई पाठका रूपमा लिई त्यसमा प्रयुक्त मार्क्सवादी चिन्तनमा विभिन्न आयामहरूको विश्लेषण र मूल्याङ्कन गरेर उक्त कविताको वैचारिकता निरूपण गरिएको छ। ‘कान्छी, भट्टी र देश’ कवितामा वर्गीय विचारलाई समेटेर नारीका वेदनालाई मुख्य केन्द्रमा राखेका छन्। यसमा नारीमाथि भएको शोषण, अन्याय अत्याचारको विरुद्धमा आवाज उठाई पितृसत्तात्मक सामाजिक र राज्यसत्ताको कारण नारीले भोगेको पीडा, शोषण र दमनको विरोध गरी वर्गीय पक्षधरतासहित नारी स्वतन्त्रता, स्वधीनता र समानताको पक्षमा उभिन आह्वानलाई प्रस्तुत गर्नु यस लेखको उद्देश्य हो। यस कवितामा विश्लेषणका निम्ति सोद्देश्यमूलक नमुना छनौट पद्धतिबाट पाठगत तथ्याङ्क सङ्कलन गरी सघन विश्लेषण गरिएको छ। त्यसका निम्ति मार्क्सवादमा आधारित सर्वहारा वर्गको पक्षधरता, क्रान्तिकारी आशावादको अवस्था र साम्यवादी लक्ष्यको विश्लेषणात्मक सैद्धान्तिक ढाँचाको उपयोग गरी सम्पन्न गरिएको छ र ‘कान्छी, भट्टी र देश’ कवितामा कान्छीजस्ता नारीले समाज तथा राष्ट्रका विभिन्न तहमा कष्टकर जीवनयापन गरिरहेको हुनाले अन्याय र असमानताको विरुद्धमा क्रान्तिको आह्वान गरी मुक्तिको बाटो रोज्नुपर्छ भन्ने निष्कर्ष निकालिएको छ।

शब्दकुञ्जी : पराइको मोर्चा, अबोध चेली, मुक्तिको बाटो, वर्गीय पक्षधरता, सर्वहारा

परिचय

कवि कृष्ण सेन ‘इच्छुक’ (वि.सं. २०१३-२०७९) नेपालको राजनीति र साहित्य दुवै क्षेत्रमा परिचित व्यक्तित्व हुन्। उनी राजनीतिज्ञ, पत्रकार साथै साहित्यकारका रूपमा परिचित छन्। उनले नेपाली जनतामा भएको अन्याय, अत्याचार, पीडा र असमानताका पक्षहरूलाई माओवादी कार्यकर्ताका हैसियतले, पत्रकार र साहित्यकारका कलमले पनि विरोध जनाएका थिए। उनले २०५२ देखि माओवादीले चलाएको सशस्त्र द्वन्द्वको समर्थनमा कलम चलाउन थालेका थिए। जसको फलस्वरूप उनका कवितामा

मार्क्सवादी चिन्तनका माध्यमबाट समाज तथा राष्ट्रमा आमूल परिवर्तन हुनुपर्ने चिन्तनको अभिव्यक्ति भएको पाइन्छ । उनका शोकाञ्जली (२०४८), बन्दी र चन्द्रागिरि (२०५७), इतिहासको यस घडीमा (२०५६) जस्ता कृतिहरू प्रकाशित छन् । साहित्यकारका रूपमा पनि स्थापित भइसकेपछि उनी क्रान्तिकारी कविका रूपमा परिचित छन् । उनी जनयुद्धमा सहभागी भएपछि राज्य पक्षबाट मारिएका क्रान्तिकारी व्यक्तित्व हुन् । उनको सम्बन्धमा निरङ्कुश शासनले सोचेको थियो कि आफ्ना सिद्धान्त र कामहरू पनि उनीसँगै मर्नेछन् तर उनी सधैं छन् र लाखौं मानिसका हृदयमा जीवित छन् (आचार्य, सन् २०११, पृ. ८४) । यसबाट 'इच्छुक'को राजनीतिक र साहित्यिक योगदान कदर गरेको देखिन्छ । 'कान्छी, भट्टी र देश' कविता इच्छुक रचनावली भाग-२ (२०६५)मा सङ्गृहीत कविताहरूमध्ये एक उत्कृष्ट कविता हो । यो कविता प्रभुत्वशाली समाज तथा राज्य व्यवस्थाको अधीनमा रहेका नारीको अवस्थालाई प्रस्तुत गरेर सामन्ती राज्यव्यवस्थाको अन्त्य हुनुपर्ने विचारमा केन्द्रित छ । यसमा नारीलाई सम्बोधन गरेर उनका वेदनालाई प्रस्तुत गरिएको छ । कान्छीजस्ता नारीले सामाजिक असमानताको घेरामा बिताउन परेको कष्टप्रद जीवन यस कविताको मुख्य विषयवस्तु रहेको छ ।

कवि 'इच्छुक'ले निम्नवर्गीय नारीको जीवनचित्र प्रस्तुत गरेको यो 'कान्छी, भट्टी र देश' कवितालाई मार्क्सवादी चिन्तनको आधारमा विश्लेषण गरिएको छ । मार्क्सवादी चिन्तन सन् १८४८ को कम्युनिष्ट घोषणापत्रमा उल्लिखित चिन्तन हो । यस चिन्तनअनुसार समाजका दुई भागहरू छन् : आधार र अधिरचना । आधारले पुँजीवादी समाजको उत्पादनप्रक्रिया र त्यससँग आवद्ध रहेको वर्गसङ्घर्षका मामिलाहरूलाई जनाउँछ । मार्क्सको भनाइअनुसार आधारले नै अधिरचनाको स्वरूपको निर्माण गर्छ तथा अधिरचनाले आधारको निहित वर्गविभेदलाई सुरक्षा दिने काम गर्छ (उप्रेती, २०६९, पृ. १६४) । मार्क्सवादले यही वर्गीय विभेदको केन्द्रियतालाई स्वीकार गरेको हुन्छ । मार्क्सवादी चिन्तनका आधारमा कृति विश्लेषण गर्दा पनि यही वर्गीय पक्षलाई हेरिन्छ । मार्क्सवादी समालोचनामा कृति विश्लेषण गर्ने महत्त्वपूर्ण बुँदाहरू निम्न स्वीकार गरिएको छ : (१) आर्थिक शक्ति, (२) आत्मवादका विरुद्ध भौतिकवाद, (३) वर्गसङ्घर्ष, (४) कला, साहित्य र विचारधारा र (५) सारवस्तु र रूप (एटम, पृ. १६८) । यी बुँदाहरूअन्तर्गत रहने 'कान्छी, भट्टी र देश' कविताको विषयसँग सम्बद्ध पक्षहरूलाई पहिल्याई सर्वहारा वर्गको पक्षधरता, क्रान्तिकारी आशावाद र साम्यवादी लक्षलाई आधार बनाएर कविताको विश्लेषण गरिएको छ ।

कवि इच्छुक एक क्रान्तिकारी व्यक्ति हुन् । उनले आफू भूमिगत हुँदाको अवस्थामा नेपाली नारीहरूले भोग्नुपरेको शोषण र पीडालाई नजिकबाट परिचित भए । त्यही अनुभवबाट सिर्जित 'कान्छी, भट्टी र देश' कवितामा नेपाली नारीले जीवनका हरेका मोडमा असमानताको सामना कसरी गर्नुपरेको छ र त्यसबाट मुक्तिका लागि कुन बाटो पहिल्याएका छन् भन्ने विचार नै यस अध्ययनको मुख्य समस्या हो । मार्क्सवादी चिन्तनको वर्गीय सङ्घर्षमा निम्नवर्गको केकस्तो अवस्था रहेको छ र उनीहरूले वर्गीय मुक्तिका लागि कस्तो कदम चालेका छन् भन्ने विषयको अध्ययन गर्न आवश्यक हुन्छ । मार्क्सवादी चिन्तनको केन्द्रियतामा अध्ययन गरिएको यस लेखमा निम्नलिखित उद्देश्यहरू रहेका छन् :

- कान्छी, भट्टी र देशकवितामा सर्वहारा वर्गको पक्षधरता विश्लेषण गर्नु,
- कान्छी, भट्टी र देश कवितामा क्रान्तिकारी आशावादको अवस्थाको विश्लेषण गर्नु र
- कान्छी, भट्टी र देश कवितामा साम्यवादी लक्ष्य पहिल्याउनु ।

पूर्वकार्यको समीक्षा

कृष्ण सेन 'इच्छुक' मार्क्सवादी चिन्तनलाई सशक्त रूपमा प्रस्तुत गर्ने कवि हुन् । क्रान्तिकारी विचारलाई साहित्य सिर्जनामा जोडेर नेपाली कविताको क्षेत्रमा देखा परेका 'इच्छुक' का कृतिहरूको सामान्य अध्ययन भए पनि कविताकृतिको सुव्यवस्थित विश्लेषण भएको पाइँदैन । उनका सम्बन्धमा समीक्षा, विश्लेषण र पत्रपत्रिकाका टिप्पणीहरू भएका छन् । तीमध्ये केही महत्त्वपूर्ण विचारहरूलाई पूर्वकार्य समीक्षाको रूपमा प्रस्तुत गरिन्छ :

चैतन्य (२०६५)ले आजको प्रतिनिधिमूलक कवितासङ्ग्रह शीर्षकको लेखमा 'इच्छुक' लाई वर्गसङ्घर्षको भावलाई घनीभूत ढङ्गले अभिव्यक्त गर्ने कवि ठानेका छन् । चैतन्यले 'इच्छुक' का कविता उत्पीडन र हस्तक्षेप विरुद्धको आवाज भएको उल्लेख गरेका छन् । उनले इच्छुकका कवितामा अन्तर्वस्तु र रूपका बिच द्वन्द्वात्मक एकत्व पाइन्छ भनेका छन् । यी भनाइबाट उनका कविताहरूमा वर्गीय विचार घनीभूत रूपमा प्रस्तुत भएको कुरा प्रस्ट हुन्छ ।

पाण्डेय (२०५४) ले द्वन्द्वरत वर्तमान र वर्तमानको कविता लेखन शीर्षकको लेखमा द्वन्द्वरत वर्तमानमा कवि कृष्ण सेन 'इच्छुक' का कविता जनसमरसिर्जित नवयथार्थको अभिव्यञ्जनामा निकै सक्रिय रहेको बताएका छन् । उनले 'इच्छुक' का कवितामा द्वन्द्वरत वर्तमानको यथार्थ पक्षलाई प्रभावकारी ढङ्गले अभिव्यक्त भएको कुरा उल्लेख गरेका छन् । उनले 'इच्छुक' का प्रवृत्तिलाई नियाल्दै युद्धको प्रतिकूल परिस्थितिबिचमा पनि स्वर्णिम भविष्यको कामना गर्ने र त्यसमा मानव जीवन मुस्कुराइरहेको हुने विषयअनुभव गरेको कुरा उल्लेख गरेका छन् । यसमा 'इच्छुक' लाई उज्ज्वल भविष्यप्रति आशावादी कविका रूपमा हेरेका छन् ।

'इच्छुक' (२०६५) को इच्छुक रचनावली भाग-२ को भूमिका लेखनहरूमा 'इच्छुक'लाई प्रगतिवादी कविका रूपमा परिचित गराइएको छ । उनका कविताहरूमा शब्द र कर्मको मेल हुनुका साथै जीवन्त, सजीव, सम्प्रेषणयुक्त र लयात्मकता रहेको विषयवस्तुको उल्लेख गरेका छन् । प्रगतिवादी विचारलाई प्रस्तुत गरिएका उनका कविताहरू विचारका दृष्टिले उच्च रहेका र भाषिक संरचनामा कोमलता भएको समेत उल्लेख गरिएको छ । यसमा 'इच्छुक' श्रम-सौन्दर्यको पक्षधर र श्रमजीवी वर्गको मुक्तिका नायक भनिएको छ । यसबाट 'इच्छुक' का कवितामा वर्गीय पक्षधरता रहेको र वर्गीय मुक्तिका लागि आवाज उठाइएका विषयहरू रहने प्रस्ट हुन्छ ।

प्रभात (२०५६) ले इतिहासको यस घडीमा इच्छुक शीर्षकको लेखमा 'इच्छुक' का कवितामा सन्तुलन र कुशलताको कमी रहेको टिप्पणी गरेका छन् । उनले 'इच्छुक' का कविता सामान्य र साधनाशील भएको उल्लेख गरेका छन् । यसमा 'इच्छुक' का कवितामा भाव र भावना भएर पनि शिल्प र गेयात्मकका दृष्टिले कमजोर रहेका, अन्तर्वस्तु र रूपको सन्तुलनमा मेल हुनुपर्ने सङ्केत गरेका छन् । साथै कवितामा सुधारका विविध पक्षहरू रहेको टिप्पणी पनि उल्लेख गरिएको छ ।

बराल (२०५७) लेबन्दी र चन्द्रागिरिको भूमिकामा 'इच्छुक'को काव्य प्रवृत्ति पहिल्याएका छन् । उनले 'इच्छुक' का कवितामा ग्रामीण क्षेत्रका विषयवस्तु नजिकैबाट अनुभूत गर्ने र स्थानीय रङ्गलाई

पनि प्रस्तुत गर्ने बताएका छन् । त्यस्तै 'इच्छुक' का कवितामा प्रकृतिलाई विचारसँग घोलेर मानवीकरण गर्ने प्रवृत्ति पाइने उल्लेख छ । यस लेखमा बरालले नवीन बिम्ब र प्रतीकहरूको प्रयोगबाट नवीन आदर्शको उद्बोधन गर्ने 'इच्छुक' को कवितात्मक विशेषता रहेको बताएका छन् । अतः 'इच्छुक' का कवितामा बिम्ब र प्रतीकको प्रयोगको माध्यमबाट निम्नवर्गीय समस्याहरूलाई प्रस्तुत गरिने सङ्केत यस लेखबाट प्राप्त भएको छ ।

भण्डारी (२०५९) ले 'इच्छुक' : अग्रगामी चेत र विद्रोहका उत्कृष्ट कवि'शीर्षकको लेखमा 'इच्छुक'को परिचय दिएका छन् र उनका तीनओटा कृतिको चर्चा गरेर निष्कर्ष निकालेका छन् । यसमा कवि 'इच्छुक'लाई क्रान्तिकारी भावदृष्टि भएका सर्वहारावादी कवि भनेका छन् । यस लेखमा 'इच्छुक'का कविता सहज, सुबोध र हृदयसंवेद भएको उल्लेख गरेका छन् । गद्यलयमा लेखिने 'इच्छुक'का कवितामा साङ्गीतिक विशेषता रहेको र गेयात्मक भएको समेत भण्डारीले बताएका छन् । त्यस्तै उनी मार्क्सवादी चिन्तनबाट प्रभावित भएको विषयलाई विद्रोहका साथै अनुभूत यथार्थ र अग्रगामी चेत उनका कवितामा अभिव्यक्त भएको विषय हो भनेर निष्कर्ष निकालेका छन् । भण्डारीले 'इच्छुक'का कवितामा मुलतः जनताको मुक्ति, सङ्घर्ष र सङ्घर्षशील प्रवृत्तिको अभिव्यञ्जना भएको समेत उल्लेख गरेका छन् । यसबाट कवि 'इच्छुक'का कवितामा साम्यवादी चिन्तन तथा मार्क्सवादी चिन्तनको अभिव्यक्ति भएको देखिन्छ ।

लुईटेल (२०६०) ले कविता सिद्धान्त र नेपाली कविताको इतिहासमा कवि कृष्ण सेन 'इच्छुक' लाई प्रगतिवादी चिन्तक मानेका छन् । उनले 'इच्छुक'का कविता प्रगीतात्मक र आख्यानतात्मक संरचनामा आवद्ध हुने बताएका छन् । यस पुस्तकमा कवि 'इच्छुक' का कवितामा वर्गीय पक्षधरता, वर्गप्रेम, बलिदानी भावना, बन्दी जीवनका पीडाजन्य अनुभूति, वर्गविभेदको विरोध, जागरणको स्वर आदि अभिव्यञ्जित हुने बताएका छन् । यसमा कवि 'इच्छुक' लाई क्रान्तिकारी, मार्क्सवादी सौन्दर्य चिन्तकका रूपमा परिचित गराइएको छ । यसबाट 'इच्छुक' का कवितामा वर्गीय पक्षधरता तथा वर्गीय विचार प्रस्तुत हुने प्रस्ट हुन्छ ।

समग्रमा कवि 'इच्छुक' का कवितामा विभिन्न बिम्ब र प्रतीकको माध्यमबाट वर्ग विभेद, स्थानीय विषय, बलिदान, जागरणको स्वर, जनताको मुक्तिको चाहना, निम्नवर्गीय परिस्थिति आदिलाई विषयवस्तु बनाइएको हुन्छ । उनका कवितामा उपर्युक्त विषयहरूको केन्द्रीयतामा मार्क्सवादी चिन्तन प्रस्तुत भएको प्रस्ट भएकाले उनको 'कान्छी, भट्टी र देश' कवितालाई मार्क्सवादी चिन्तनको केन्द्रीयतामा अध्ययन गरिएको छ ।

अध्ययन विधि

प्रस्तुत अध्ययनमा उद्देश्यमूलक नमुना छनोट विधिका आधारमा कृष्ण सेनको 'कान्छी, भट्टी र देश' कवितालाई छनोट गरिएको छ । मार्क्सवादी अध्ययन साहित्य र समालोचनाको क्षेत्रको निकै महत्त्वपूर्ण अध्ययन पद्धति हो । प्रस्तुत अध्ययनमा मार्क्सवादसँग सम्बन्धित आवश्यक पर्ने सामग्रीहरू सङ्कलन गर्न प्राथमिक तथा द्वितीय स्रोतको उपयोग गरिएको छ । यसका लागि पुस्तकालयीय सामग्री सङ्कलन विधिलाई प्रमुख आधार बनाई 'कान्छी, भट्टी र देश' कवितालाई प्राथमिक स्रोतको सामग्रीको

रूपमा उपयोग गरिएको छ भने अध्ययनसँग सम्बन्धित अन्य सामग्रीहरू र प्रज्ञिक विषयसँग सम्बद्ध विषयको जानकारीका लागि द्वितीय स्रोतका रूपमा पुस्तकालयको प्रयोग गरिएको छ । 'कान्छी, भट्टी र देश' कवितामा मार्क्सवादी चिन्तनको अध्ययन गर्दा मार्क्सवादी सिद्धान्तसँग सम्बद्ध रहेर सर्वहारा वर्गको पक्षधरता, क्रान्तिकारी आशावादिता र साम्यवादी लक्ष्य शीर्षकमा आधारित रही तुलनात्मक तथा विश्लेषणात्मक पद्धतिबाट अध्ययन गरिएको छ । मार्क्सवादसँग सम्बन्धित स्थापित सिद्धान्तका आधारमा सामग्री विश्लेषणको आधार तय गरिएकाले यसमा निगमनात्मक विधिको उपयोग गरिएको छ भने कविताको सन्दर्भलाई समेत उल्लेख गरी आगमनात्मक विधिको समेत उपयोग गरिएको छ साथै गुणात्मक ढाँचाको प्रयोग गरी निष्कर्ष निकालिएको छ ।

सैद्धान्तिक पर्याधार

मार्क्सवादी सिद्धान्तलाई वैज्ञानिक सिद्धान्त मानिन्छ । मार्क्सवाद कार्ल मार्क्स र फ्रेडरिक एङ्गल्सद्वारा प्रतिपादन गरिएको सर्वहाराको पक्षमा आवाज उठाइएको विचारधारा हो । यो वर्गसङ्घर्ष, इतिहासमा बलप्रयोग र सर्वहारा वर्गको अधिनायकत्वमा आधारित छ । यसको मूल आदर्श साम्यवादको प्राप्ति हो । यसमा सर्वहारा तथा श्रमजीवी वर्गको मुक्तिका लागि सङ्घर्ष आवश्यक रहेको ठानिन्छ । मार्क्सवादलाई द्वन्द्वात्मक ऐतिहासिक भौतिकवादी दृष्टिकोणबाट हेर्ने र सोहीअनुसार व्याख्या गरेर सर्वहारा वर्गको जीवनका पक्षहरूलाई प्रस्तुत गरिन्छ । मार्क्सवादले कला तथा साहित्यलाई अधिरचनाको रूपमा व्याख्या गर्छ । यस अधिरचनारूपी कलाले समाजमा आर्थिक आधारको विचारधारात्मक प्रतिबिम्बन गरी अस्तित्ववान् हुन्छ भन्ने मान्यता राख्छ । आर्थिक धरातल (आधार) माथि उभिएको विशाल अधिरचनालाई मार्क्सले विचारधारात्मक अधिरचना भनेका छन् (पाण्डेय, २०७३, पृ. १५६-१५७) । यस आधारमा कलासाहित्य पनि विचारधाराकै रूप भएको प्रस्ट हुन्छ । कलासाहित्यको रूप र अन्तर्वस्तुलाई आधारले निरपेक्ष रूपमा प्रभाव पारेको हुन्छ । त्यसैले आर्थिक आधार मात्र उत्पादन र पुनः उत्पादन होइन । एङ्गल्सका अनुसार आर्थिक स्थिति आधार त हो तर अधिरचनाका थुप्रै तत्त्वहरूले ऐतिहासिक सङ्घर्षलाई प्रभावित तुल्याउँछ र थुप्रै अवस्थामा रूपलाई पनि निर्धारण गर्छ (पाण्डेय, २०७३, पृ. १५५) । यसबाट कला कलासाहित्यलाई अधिरचनाको रूपमा प्रथमिक शक्ति नभएको तर सामाजिक परिवर्तनको लागि एक माध्यमका रूपमा स्वीकार गरिएको देखिन्छ । समाजमा हुने परिवर्तनको मुख्य निर्णायक र आधारभूत तत्त्व आर्थिक आधार भएको मार्क्सवादले बताउँछ । अधिरचनाले त आधारलाई वैधता प्रदान गर्नमा भूमिका निर्वाह गर्दछ । मार्क्सवादी चिन्तनमा आधारले अधिरचनाका रूप र अन्तर्वस्तुको निर्माण र निर्धारण गर्छ । यस आधारमा कलासाहित्यले समाज परिवर्तनका लागि भूमिका निर्वाह गर्छ भन्ने कुरा मार्क्सवादी चिन्तनमा समाहित छ भन्ने प्रस्ट हुन्छ ।

मार्क्सवादी चिन्तनमा समाज वर्गीय हुन्छ । वर्गीय समाजमा विचारधाराको प्रवाहमा कलासाहित्य पनि वर्गीय हुन्छ । मार्क्सवादले कलासाहित्यलाई आधारको विचारधारात्मक प्रतिबिम्बन भने पनि यो दर्शन र राजनीतिभै विशुद्ध विचारधारा होइन र यसमा इन्द्रियबोध र भावहरूको सान्निध्यमै विचारको उपस्थिति रहन्छ भन्ने कुरा स्वीकार गरेको छ (मिश्र, सन् २०१०, पृ. ३०२) । कलामा सौन्दर्य 'सार' (अन्तर्वस्तु) र 'रूप' (भाषा र संरचनागत पक्ष)को द्वन्द्वात्मक समष्टि हो । मार्क्सवादी सौन्दर्यशास्त्रको अवधारणामा

साहित्यमा सामाजिक यथार्थको चित्रण हुनुको साथै सर्वहारा वर्गको पक्षधरता, क्रान्तिप्रति आशावादी र साम्यवादी लक्ष्यलाई अन्तर्वस्तु बनाइएको हुन्छ । यसलाई श्रमद्वारा निर्मित सुन्दर वस्तु ठानिन्छ । रूप पक्ष भनेको भाषिक कलाको पक्ष हो । सर्वहारा वर्गको पक्षमा प्रस्तुत हुने भाषिक कला सरल, लयात्मक र जनसाधारणका निम्ति सम्प्रेषणयोग्य हुनुपर्छ । यसमा समाजवादी अन्तर्वस्तु र जनपक्षीय भाषाको प्रयोगले साहित्य सुन्दर बनेको हुनुपर्छ । यही जनवादी साहित्यको माध्यमबाट साम्यवादी आदर्शको सौन्दर्य प्रस्तुत गरिन्छ । मार्क्सवादले मूलतः ऐतिहासिक भौतिकवाद र द्वन्द्वात्मक भौतिकवादका सापेक्षतामा मानव जीवन, समाज र त्यसको इतिहास अनि कला साहित्यमा रहेका सुन्दर पक्षको खोजी गर्छ । यसलाई व्यवहारिक सिद्धान्त मानिएको छ । मार्क्सवाद कुनै जडसूत्र वा सिद्धान्त नभएर व्यवहारलाई पथ प्रदर्शन गर्ने सदा गतिशील सिद्धान्त हो (भट्ट, २०५५, पृ. ६०९) । त्यसैले मार्क्सवादी विचारमा कलासाहित्यको कार्य यथार्थको चित्रण गर्नु मात्र नभई व्यवहारिक पक्षसँग सम्बद्ध रही सामाजिक सुधारको लागि सामाजिक यथार्थको खोजी गर्नु पनि हो ।

मार्क्सवादले सम्पूर्ण मानवसमाजको इतिहासलाई वर्गसङ्घर्षका दृष्टिले हेर्छ । समाज वर्गीय हुने र समाजको विकास प्रक्रियामा भएका वर्गसङ्घर्ष, वीरता, क्रान्ति र सर्वहारा वर्गको विजयका पक्षहरूलाई यसले महत्त्वका साथ हेर्छ । मार्क्सवादी साहित्य मार्क्सवादसँग सम्बद्ध छ । मार्क्सवादी साहित्यमा वर्गीय समाजका यथार्थ विषयमा सामाजिक असमानता, शोषण, दमन, उत्पीडन, अन्याय, अत्याचार, जनघात, अधीनस्थता आदि विषयहरू प्रस्तुत हुन्छन् । समाजमा निम्न वर्गमा गरिने विभिन्न प्रकारका शोषण, अन्यायका विषयहरू मानव समाजका असुन्दर कुरूप पक्ष हुन् भने सर्वहारा वर्गका पक्षका वर्गीय द्वन्द्व, जनविद्रोह, क्रान्ति, साहदात, जित, परिवर्तन आदि सुन्दर पक्ष हुन् । वर्गसङ्घर्षले र त्यसै वर्गसङ्घर्षले विकास गरेको सामाजिक विकास आफैँमा सुन्दर कला हो (बराल, २०६७, पृ. ४९) । यसको तात्पर्य सामन्ती पूँजीवादी समाजका पक्षहरू असुन्दर हुन् र तिनका विरुद्धका चित्रणहरू नै सुन्दर पक्षका रूप हो । त्यसैले लेलिनले साहित्यलाई सर्वहारा वर्गको एक अस्त्रका रूपमा स्वीकार गरी साम्यवादी साहित्यको आह्वान गरेका छन् (त्रिपाठी, २०५८, पृ. १५०) । लेलिनले साहित्य सर्वहारा वर्गका लागि लेखिनुपर्ने र साम्यवाद निर्माणको साक्षात् उद्देश्य हुनुपर्ने बताएका छन् । अतः : मार्क्सवादमा जनवादी विचार हुने र साम्यवाद नै मानव जातिको मुक्ति र कल्याणको बाटो हुने देखिन्छ । त्यसैले यो आध्यात्मिक तथा आदर्श विरुद्धको वस्तुवादी भौतिक विचार पनि हो । यही भौतिकवादी विचारलाई अंगिकार गरेर सर्वहारा वर्गले वर्ग उन्मूलनको लागि सङ्घर्ष गर्नुपर्छ । वर्गहरूको उन्मूलनको अर्थ समग्र रूपमा समाजको अधीनस्थ रहेका उत्पादन साधनहरूको सम्बन्धमा सबै नागरिकहरूलाई समान स्तरमा राख्नु हो । नागरिकहरूलाई समान स्तरमा राख्नका लागि साम्यवाद निर्माण गर्नुपर्ने भएकाले मार्क्सवादी चिन्तनमा साहित्य साम्यवाद निर्माणको बाटोमा उन्मुख हुनुपर्छ ।

मार्क्सवादका सम्बन्धमा विभिन्न चिन्तकहरूका आआफ्नै परिभाषा भए पनि मूलतः साहित्यसँग जोडेर हेर्दा समाजको भौतिक विकाससँग सम्बद्ध रहेको पाइन्छ र वस्तुगत यथार्थको कलात्मक प्रतिबिम्बन साहित्यमा हुनुपर्ने मानिन्छ । यही कलात्मक रूपको वस्तुगत अध्ययनको केन्द्रमा रही यस लेखमा ‘कान्छी, भट्टी र देश’ कवितामा सर्वहारा वर्गको पक्षधरता, क्रान्तिकारी आशावाद र साम्यवादी लक्ष्यलाई पहिल्याउने कार्य गरिएको छ ।

नतिजा र छलफल

छलफल र विश्लेषणमा विवेच्य कविताका विविध पक्षबारे उद्देश्यहरूअनुरूप व्याख्या, विश्लेषण गरी निष्कर्षमा पुग्ने प्रयास गरिएको छ। उक्त पक्षलाई विभिन्न उपशीर्षकमा छलफल र विश्लेषण गरिएको छ।

‘कान्छी, भट्टी र देश’ कविताको विषयवस्तु

प्रस्तुत ‘कान्छी, भट्टी र देश’ कवितामा नारी जीवनका पक्षहरूसहित वर्गीय विषयवस्तुको अभिव्यक्ति रहेको छ। पितृसत्तात्मक समाजमा एकली कान्छीले बिताउनुपरेको बाध्यता र परिस्थिति यस कविताको विषयवस्तु हो। उसले मन नलागी नलागी पनि भट्टी चलाएकी छे। यो उसको बाध्यात्मक अवस्था हो। उसका मनभित्र दुःख, पिर र वेदना भए पनि हिमाली हाँसोजस्तै कान्छीले बाहिरी मुस्कान देखाउँदै भट्टी थापेकी छे। उसले जीविका चलाउनका लागि गरिब माइतीले दिएको दाइजोबाट भट्टी चलाएकी छे। यो उसको मात्र विवशता होइन, हरेक निम्न वर्गीय नेपाली नारीको समस्या हो। भट्टी चलाएर जिविकोपार्जन गर्ने कान्छी नेपाली समाजका नारीकी प्रतिनिधि पात्र हो। उसलाई ग्राहकको उपहास, कलुषित हेराइ, हेपाइ आदि सहेर पनि व्यापार चलाउनुपर्ने र हाँस्नुपर्ने विवशता छ। उसले भट्टीमा भात र मासु पकाइरहेकी छ। भात र मासुसँगै आफ्ना दुःख, पिर र वेदना पकाउन बाध्य भएकी छे। उसले वेदना, असुरक्षा, छुटपटी भोगिरहेकी छे। उसको रूप र बैस रक्सीका बोटलसँगै रित्तिदै गएका छन्। उसको पहिचान एक श्रमजीवी नारीका रूपमा रहेको छ। राज्यपक्ष र सामाजिक पक्षको अधीनमा रहेकी कान्छी गरीबी, अभाव र अपमानमा जीवन बिताउन बाध्य छे। यो उसको मात्र समस्या नभएर कान्छीजस्ता निम्न वर्गीय समग्र नेपाली नारीको समस्या हो। पितृसत्तात्मक समाजमा उसको जीवन वेदनामय भएको छ, पति परदेसिएको पुरुषप्रधान समाजमा नारीको जीवन वेदनामय भएको, परदेसिएका पति र टाहिएका आफन्त सम्भरेर उसले दिन काटिरहेकी छे। ऊ कोशीका छालभैँ बन्धक बनेकी छे, गण्डकीभैँ बेचैन र कर्णालीभैँ कामुक आँखाले डामिएकी छे। उसमा प्रतिरोधको भावना रहेको छ। नेपाली नदीनालाभैँ उसलाई स्वदेशी र विदेशी शोषक वर्गको नजरमा परेको प्रस्तुत कवितामा कान्छीले आफूदेखि धेरै टाढा सङ्घर्षमा होमिएका व्यक्तिहरूदेखि नयाँ परिवर्तनका लागि आशावादी रहेकी छे।

‘कान्छी, भट्टी र देश’ कवितामा सर्वहारा वर्गको पक्षधरता

‘कान्छी, भट्टी र देश’ कविता मूलतः वर्गीय विषयमा केन्द्रित छ। ‘इच्छुक’ ले आफू भूमिगत भएको अवस्थामा नेपालका ग्रामीण इलाकाहरूमा गएर त्यहाँको जनजीवनसँग साक्षात्कार हुने अवसर प्राप्त गरे। उनले त्यहाँ परिश्रम गर्ने व्यक्तिहरू दुःखी भएको र केही नगरी बस्ने व्यक्तिले राज्यको सबै सुविधा भोग गरेको अवस्था देखे। यस्तो राज्यको नीति उपल्लो वर्गका पक्षमा मात्र रहेको र बहुसङ्ख्यक निम्नवर्गीय जनता त्यसमा पनि नारी पीडित भएको अवस्थाको पक्षधरतालाई कविले कवितामा प्रस्तुत गरेका छन्। नेपालमा वर्गीय समस्या एक प्रमुख समस्याको रूपमा रहेको छ। वर्गीय समस्यामा नारीले पाएको पीडामा कवि दुःखी भएका छन्। कविताका पङ्क्तिहरूमा उल्लेख भएअनुसार : चियाको किटलीजस्तै भक्कमी उम्लिरहेको दुःखी मन अनि

रक्सीका बोटलहरूसित रिक्तिरहेको बैसालु यौवनलाई
 विवशताका भोका थाली र कचौराहरूमा पस्केर
 सन्तप्त मुस्कानहरूले उदासी बाँडिरहिछ
 कान्छी भट्टी थापिरहिछ । (पङ्क्ति ४-८)

उपर्युक्त कवितांशमा सर्वहारा वर्गको विवशतालाई प्रस्तुत गरिएको छ । भट्टीमा चियाको किल्लीमा चिया उम्लिए जस्तै मन दुःखी भएर उम्लिएको अवस्था नेपाली निम्नवर्गीय पीडा नारीको हो र उसको विवशता भनेको रक्सी बेच्नु पनि हो । यसरी भट्टीमा रक्सी बेचेर नै उसको बैस समाप्त हुनेछ । उसले खाली भएका थाल र कचौराजस्तै आफ्नो बाध्यतालाई पस्केर भित्र छटपटी भएपछि बाहिर मुस्कान छाडेर भट्टी थापेकी छे । कवि 'इच्छुक' ले यस्तो असहज पक्षलाई देखाएर नारीका जीवनमा आइपरेको दुःख, कष्ट र विरहका माध्यमबाट वर्गीय अवस्थाका पक्षहरूलाई प्रत्यक्ष गरेर वर्गीय पक्षधरतालाई प्रस्तुत गरेका छन् । यहाँ प्रस्तुत कान्छी एक व्यक्ति कान्छी मात्र नभएर समग्र सर्वहारा वर्गको प्रतिनिधि पात्रको रूपमा रहेकी छे । उसले बिताएको असहज परिस्थिति हरेक सर्वहारा वर्गको प्रतिनिधित्व गर्ने वर्गीय पीडाको अवस्था हो । कवितामा कान्छीले आफ्नो जीविकाको लागि गरीब माइतीले दिएको दाइजोले भट्टी थापेकी छे । यहाँ यात्रुहरू आइरहेका छन् र गइरहेका छन् । ती यात्रुहरूले उसको रूपको नसा पिइरहेका छन् तर त्यो उसको रूपको नसा नभएर बाध्यता र विवशतालाई पिइरहेको अवस्था कविले बताएका छन् । त्यस्तै कान्छीले भट्टी थापेर दिनरात कसरी कटाइरहेकी छे भन्ने सन्दर्भ कविताको निम्न पङ्क्तिहरू उल्लेखनीय छन् :

विदीर्ण मन अनि जीर्ण तनलाई
 जोरेर छटपटीको तातो भुङ्गेभित्र
 खिन्न सुस्केराहरूमा पीडाका धुँवाहरू फाल्दै
 दिनरात क्लेश काटिरहिछ
 कान्छी भट्टी थापिरहिछ । (पङ्क्ति १३-१७)

उपर्युक्त पङ्क्तिहरूबाट कविले कान्छीको अवस्थालाई प्रस्तुत गरेर टुक्राटुक्रा भएर फ्याक पारिएको मन र पुरानो थोत्रो तन भएको चर्चा गरिएको छ । त्यो मन र तनमा छटपटी भएर दुःख र पीडाका सुस्केरहरू फाल्दै दिनरात काटिरहेको सर्वहारा वर्गको अवस्था यसमा उल्लेख गरिएको छ । यसबाट कान्छीको अवस्थालाई मात्र होइन, राज्य र समाजिक रूपमा पछि पारिएका सर्वहारा वर्गको वेदनालाई पनि प्रस्तुत गरेर त्यसको अन्त्य हुनुपर्ने सङ्केत कवितामा अभिव्यक्त भएको पाइन्छ । त्यस्तै सारमा हेर्दा सामन्ती वर्गको उपस्थिति रहेको देखिन्छ, जसबाट निम्न वर्ग सधैं अधीनस्थ भई बस्न बाध्य हुन्छ । यस सन्दर्भमा निम्नलिखित कविताका पङ्क्तिहरूले पनि सामन्ती वर्गको शोषण गर्ने प्रवृत्तिलाई सङ्केत गरेको देखिन्छ,

भट्टीमा भात पाकिरहेछ
 भात सँगसँगै कान्छीको लाज पाकिरहेछ

भट्टीमा मासु पाकिरहेछ,

मासु सँगसँगै कान्छीको आँसु पाकिरहेछ,

भट्टीमा रक्सी बिकिरहेछ,

रक्सी सँगसँगै कान्छीको श्री बिकिरहेछ । (पङ्क्ति, १७-२३)

उपर्युक्त साक्ष्यमा कान्छीले भट्टीमा भात पकाइरहेकी छे । वर्गीय समाजमा भात पकाएर जीविका चलाउने निम्न वर्गलाई उपल्लो वर्गले हेर्ने दृष्टिकोणमा भिन्नता रहेको पाइन्छ । निम्न वर्गलाई गर्ने व्यवहार अपमानजनक र घिनलाग्दो पनि हुन्छ । भट्टीमा मासु र रक्सी बेच्ने नारीलाई इज्जतका दृष्टिले पनि तल्लो तहमा राखिन्छ । भट्टी पसल गर्ने वा रक्सी बेच्ने नारीलाई वेश्याको रूपमा समेत हेरेर आफ्ना चेलीबेटीहरूलाई उनीहरूसँग घुमन र बाहिरी अन्य व्यवहार गर्न समेत बन्देज लगाइन्छ । यस्तो दृष्टिकोणले नारीको इज्जतमा समेत धावा बोलेको र असमानताको व्यवहार गरेर तिरस्कृत गरिएको अवस्था हो । यस्ता नारी नेपाली नारी नै हुन र उनीहरूको बाध्यता, विवशता, दुःख र पीडालाई अनुभूत गर्न सक्नुपर्ने र उनीहरूको पक्षमा आवाज उठाउनुपर्ने कविले सङ्केत पनि गरेका छन् । यस सन्दर्भमा कविताको निम्न पङ्क्तिहरू सान्दर्भिक भएका छन् :

नेपाली छोरी ऊ

हिमालकी गोरी ऊ

विदेशका कोठीमा बेचिएकी अबोध चेलीभैँ

गहबाट बहका नदीहरू भारिरहिन्छ,

कान्छी भट्टी थापिरहिन्छ । (पङ्क्ति, २४-२८)

उपर्युक्त पङ्क्तिहरूमा कान्छी कुनै अन्य व्यक्ति नभएर आफ्नै देशकी एक चेली भएको र ऊ नेपाली नागरिक साथै हिमालकी गोरी भन्ने पदावलीको प्रयोगले सुन्दर नेपाली नारीलाई बुझाएको छ । नेपाली नारी जसरी विदेशी कोठामा बेचिँदा आफ्नो गहभरि आँसु भाँदछन्, त्यसरी नै भट्टी थापेर दुःख, असमानता, शोषण र दमनजस्ता विभिन्न पीडाहरू सहेर कान्छीले बस्नुपरेको परिस्थिति हो भन्ने सङ्केत गरिएको छ । यो कान्छीको मात्र वेदना नभएर समग्र सर्वहारा वर्गको बाध्यात्मक पीडा हो । यही निम्न वर्गीय बाध्यतामा उच्च वर्गद्वारा सिर्जित असमानता र पीडाको छटपटी पनि हो । समग्रमा कविले सर्वहारा वर्गलाई हेर्ने दृष्टिकोणमा भिन्नता आउनुपर्ने सङ्केत सारका रूपमा प्रस्तुत गरेर सर्वहारा वर्गको पक्षधरतालाई प्रस्तुत गरेका छन् ।

‘कान्छी, भट्टी र देश’ कवितामा क्रान्तिकारी आशावाद

मार्क्सवादी चिन्तनमा प्रभुत्वशाली वर्गको दमन र शोषणका विरुद्धमा सर्वहारा वर्गले क्रान्ति गरी परिवर्तनलाई ल्याउँछन् भन्ने मान्यता रहेको छ । क्रान्तिले सर्वहारा वर्गको जीवनमा परिवर्तन ल्याउने र अन्याय अत्याचार तथा दमन, शोषणबाट मुक्ति दिलाउने आशा गरिएको हुन्छ । यस कवितामा पनि ‘

इच्छुक' ले क्रान्ति र त्यसबाट नयाँ समाजको निर्माण हुने विचारलाई सङ्केत गर्न कान्छीको विषयलाई प्रस्तुत गरेका छन् । यस सन्दर्भमा कविताको निम्न पङ्क्ति सान्दर्भिक बनेको छ :

जोरेर छटपटीको तातो भुङ्ग्रोभिन्न

खिन्न सुस्केराहरूमा पीडाका धुँवाहरू फाल्दै

दिनरात क्लेश काटिरहिन्छ । (पङ्क्ति, १४-१५)

माथिको साक्ष्यमा कान्छीको अवस्था प्रस्तुत भएको छ । यो अवस्था कान्छीमा भएको अतिशय पीडाको अवस्था हो । यो अवस्था समग्र सर्वहारा वर्गको भएको हुनाले क्रान्तिकारी चिन्तनको वाहकका रूपमा देखिएको छ । सर्वहारा वर्गलाई गरिएका असमान व्यवहार, पीडा र शोषण तथा दमनका कारण उनीहरू क्रान्ति गर्न बाध्य हुन्छन् र क्रान्तिपछिको अवस्थामा सर्वहारा वर्गको राज्यसत्ताको स्थापना हुने आशा राखिएको हुन्छ । यसै गरी कवितामा युद्धको मोर्चामा लड्न गएका आफ्ना प्रियजनलाई सम्भेर बोलाउँदै सुदिन फर्कने आशा गरिएको छ । यो आशालाई क्रान्तिकारीले सर्वहारा वर्गको पक्षमा युद्ध गरिसकेपछि उज्ज्वल भविष्यप्रतिको आशा हो भनी बुझ्न सकिन्छ । पुँजीवादी समाजमा दमन, शोषण, अन्याय बढ्दै जाँदा निम्न वर्गका मानिसहरू आफ्ना हक र अधिकारका लागि सचेत हुँदै जान्छन् र विद्रोहको जन्म पनि हुन्छ । यस कवितामा छापामार युद्ध तथा क्रान्तिको सङ्केत गरेर अगामी भविष्यप्रति आशावादी रहेको प्रस्तुति पाइन्छ । यसलाई निम्न पङ्क्तिहरूको माध्यमबाट थप प्रस्ट पार्न सकिन्छ :

जो आफूदेखि धेरै टाढा

सुदूर छाउनी र पराइका मोर्चाहरूमा बेखबर

प्रिय पति र मायालु बन्धुहरूलाई सम्भेर

स्नेहपूर्ण भाकामा डाकिरहिन्छ । (पङ्क्ति, ३५-३८)

प्रस्तुत पङ्क्तिहरूमा युद्धका लागि सम्पर्कविहीन भएर कान्छीका आफ्ना प्रियजन र मायालु बन्धुहरू दूर छाउनी र मोर्चामा आबद्ध भएका छन् । यिनीहरू नै क्रान्ति तथा परिवर्तनका संवाहक भएको र तिनीहरूकै माध्यमबाट सर्वहारा वर्गले आफ्नो अधिकार सुनिश्चित गर्ने तथा दुःख, पीडा र असमानताको अन्त्य गर्ने आशा राखिएको प्रस्ट हुन्छ ।

‘कान्छी, भट्टी र देश’ कवितामा साम्यवादी लक्ष्य

मार्क्सवादी चिन्तनको मूल उद्देश्य सर्वहारा वर्गको पक्षमा उभिएर पुँजीपति वर्गको राज्यसत्तालाई फालेर साम्यवादी व्यवस्था कायम गर्नु हो । समाजमा विद्यमान शोषण, दमन, अन्याय, अत्याचार र असमानताका खाडलहरू बढ्दै गएमा विचारधारात्मक सङ्घर्षको अवश्यकता रहेको मानिन्छ । यस्तो अवस्थामा क्रान्तिका पक्षधर वर्गीय शक्तिहरू परिवर्तन तथा वर्गीय पक्षमा एकजुट हुन्छन् । उनीहरूमा चेतना भरिदै आउँछ र वास्तविक यथार्थको पनि ज्ञान हुन्छ । शोषित, पीडित तथा सर्वहारा वर्ग भ्रमबाट मुक्त हुनका लागि क्रान्तिको बाटो रोज्छन् । यही क्रान्तिले नै साम्यवादी लक्ष्यलाई पहिल्याएको हुन्छ ।

प्रस्तुत 'कान्छी, भट्टी र देश' कवितामा पनि कान्छीलाई सर्वहारा वर्गको प्रतिनिधि पात्रको रूपमा प्रस्तुत गरिएको छ र उसका पीडा, व्यथा र जीवनका असमान भोगाइहरूको माध्यमबाट नारीको मुक्तिको बाटो खोलिनुपर्ने सङ्केत गरिएको छ ।

कवितामा “कोही उसको रूपको नशा पिइरहेछन्” (पङ्क्ति ११) बाट कान्छीलाई हेर्ने दृष्टिकोण शोषणयुक्त सामाजिक परिवेशको रहेको देखिन्छ । त्यस्तै “दिनरात क्लेश काटिरहिछ” (पङ्क्ति १६) बाट उसले दिनरात दुःखी भएर बिताउनुपरेको अवस्थालाई देखाइएको छ । कान्छीले पाएका पीडाका आँसुलाई कविले “मानौं खुसी खोसिएका कोशीका अशान्त छालहरू हुन्” (पङ्क्ति, ३०) भनी अभिव्यक्त गरेका छन् भने उसका रहरहरूलाई “मानौं बन्धकी परेका गण्डकीका बेचैन लहरहरू हुन्” (पङ्क्ति, ३२) भनेका छन् । त्यस्तै “घरिघरि ठालुका कामुक आँखाले डामिएकी कर्णाली हो” (पङ्क्ति, ३४) भन्ने अभिव्यक्तिबाट कान्छीलाई निम्न वर्गीय कन्याका रूपमा लिएर ठूला देशका आँखामा परेकी कर्णालीजस्तै ठानिएको छ । यी सबै अभिव्यक्ति सर्वहारा वर्गले भोग्नुपर्ने पीडाका विम्बहरू हुन् । यसमा प्रस्तुत कोशी, गण्डकी र कर्णाली नदीहरूको सन्दर्भ र छालहरूको विषयले कुनै पनि बेलामा नदी उर्लेर आउन सक्ने र छालले सबै सोहोरेर लैजान सक्ने पनि सङ्केत गरिएको छ । यसबाट कविले नेपाली नारीले भोग्नुपरेको पीडालाई प्रस्तुत गरेर त्यसका अन्त्यका लागि साम्यवादको स्थापनार्थ धेरै टाढा मोर्चाबन्द भएर क्रान्तिकारी व्यक्तिहरू बसेको पनि उल्लेख गरेका छन् । यस सन्दर्भमा कविताको निम्न पङ्क्तिहरू सान्दर्भिक हुन्छन् :

जो आफूदेखि धेरै टाढा

सुदूर छाउनी र पराइका मोर्चाहरूमा बेखबर

प्रिय पति र मायालु बन्धुहरूलाई सम्भरेर

स्नेहपूर्ण भाकामा डाकिरहिछ

कान्छी भट्टी थापिरहिछ । (पङ्क्ति ३५-३९)

प्रस्तुत पङ्क्तिहरूमा पनि क्रान्तिका विचारलाई सुदूर छाउनी र पराइका मोर्चाहरूको सन्दर्भले जोडेको छ । यो क्रान्तिपश्चात् कान्छीका समस्याहरूको समाधान हुने भाव यसबाट प्राप्त भएको छ । जुन प्रभुत्वशाली वर्गको दमन, शोषण र असमानताबाट मुक्तिको बाटोतर्फ उन्मुख भएको हुन्छ । यसबाट निम्न वर्गको पक्षमा सङ्घर्ष निरन्तर हुने साथै एक दिन विद्रोहात्मक क्रान्ति पनि हुने र राज्यसत्ता सर्वहारा वर्गको हुने सङ्केत पनि प्राप्त भएको छ । यो सङ्केतले साम्यवादी लक्ष्यलाई समेटेको प्रस्ट हुन्छ ।

निष्कर्ष

कृष्ण सेन ‘इच्छुक’ वर्गीय पक्षधरतालाई मूल चिन्तनको रूपमा स्वीकार गर्ने मार्क्सवादी विचारसँग सम्बद्ध कवि हुन् । उनको ‘कान्छी, भट्टी र देश’ कविता सर्वहारा वर्गका रूपमा कान्छीलाई प्रस्तुत गरेर नेपाली नारी जीवनका जटिलताको अभिव्यक्ति दिने साहित्य सिर्जना हो । यस कवितामा निम्न वर्गीय नारीका अभाव, पीडा, उत्पीडन, छटपटी, वेदना, असमानता र सीमान्तीकृत भएको अवस्थालाई प्रस्तुत गरी क्रान्तिचेतसहित साम्यवादी लक्ष्यलाई सङ्केत गरिएको छ । यहाँ सामन्ती वर्गलाई अप्रत्यक्ष रूपमा

प्रस्तुत गरी पितृसत्तात्मक राज्यव्यवस्थामा नारीले असमानताका विभिन्न उत्पीडन भोग्नुपर्ने विचारसहित असमानताको खाडललाई पुर्नका निम्ति क्रान्तिको आवश्यकतालाई औल्याइएको छ । कवितामा कान्छीका पीडालाई केन्द्रमा राखेर उसले भोगेका भोगाइसहित कोशी, गण्डकी, कर्णाली नदीमा विदेशी आँखा परे भैं कान्छीमा पनि शोषक, सामन्ती वर्गको गिद्धे नजर परेको विषयलाई बिम्बात्मक रूपमा प्रस्तुत गरिएको छ । कवि 'इच्छुक'ले कान्छीको विषयलाई समग्र निम्न वर्गीय नारीको समस्यामा रूपान्तरित गरी सर्वहारा वर्गको पक्षधरतालाई प्रस्तुत गरेका छन् । कान्छीका दुःख, कष्ट, पीडा, उत्पीडन र वेदनाका तथ्यहरूको अभिव्यक्तिसहित कविले कान्छीमा भित्री पीडाको सागर भएपनि बाहिर हाँसेर भट्टी थाप्न विवस भएको विषयलाई समेटेर कान्छी जस्ता नारीलाई सम्मान गर्न र उनीहरूको मुक्तिका लागि क्रान्ति गर्नुपर्ने भाव पनि प्रस्तुत गरेका छन् । यो क्रान्तिपछि सर्वहारा वर्गको पक्षमा साज्यसत्ता हुने र समतामूलक समाजको निर्माण हुने आशावादिता हो । कवितामा सुदूर छाउनीमा मोर्चाबन्द भई बसेका प्रिय पति र मायालु बन्धुहरू बसेका हुनाले उनीहरूले शोषण, दमन, अन्याय, अत्याचारका विरुद्धमा क्रान्तिको विगुल फुक्ने भाव प्रस्तुत गरिएको छ । समग्रमा 'इच्छुक' ले कान्छीलाई समग्र सर्वहारा वर्गीय नेपाली नारीको प्रतिनिधि पात्रको रूपमा प्रस्तुत गरेका छन् । उनले कान्छीकै पीडाको माध्यमबाटसर्वहारा वर्गको पक्षधर ताको अभिव्यक्ति गरी साम्यवादको लक्ष्यमा पुग्नका लागि मुक्तिको बाटो रोज्नु पर्ने अर्थात् क्रान्ति हुने र त्यसबाट नयाँ समाजको निर्माण हुने भाव प्रस्तुत गरेका छन् । अतः यस कवितामा कान्छीको अवस्थाको केन्द्रीयतामा मार्क्सवादी चिन्तनलाई प्रभावकारी रूपमा प्रस्तुत गरिएको छ ।

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नेपालको संविधानमा प्रयुक्त शब्दभण्डारको अध्ययन

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लेखसार

प्रस्तुत नेपालको 'संविधानमा प्रयुक्त शब्दभण्डारको अध्ययन' शीर्षकको अनुसन्धानात्मक लेख नेपालको संविधान २०७२ मा के कस्ता स्रोतका शब्द प्रयोग भएका छन् भन्ने समस्या तथा यसमा प्रयोग भएका शब्दको स्रोत पहिचान गर्ने उद्देश्यमा केन्द्रित रहेको छ। यसमा अध्ययनको क्षेत्र कानूनान्तर्गत नेपालको संविधान रहेको छ। यसमा नेपालको संविधानका शब्दहरू आवृत्त नहुने गरी रेखाङ्कन तथा टिपोट गरेर सूचीकरण गरिएको छ। उक्त शब्दहरूलाई गुणात्मक विधिअन्तर्गतको दस्तावेज अध्ययन विधिअनुसार वर्गीकरण तथा विश्लेषण गरी निष्कर्षमा पुगिएको छ। शब्दहरू सङ्कलन गर्दा खासगरी स्वतन्त्र अर्थयुक्त कोशीय शब्दहरू नछुटाई टिपोट गरिएको छ। यसरी शब्दको सङ्कलन गर्दा जम्मा शब्दसङ्ख्या १६३९ मध्ये १०८२ तत्सम (६६.०१ प्रतिशत), तद्भव ३९५ (२४.१० प्रतिशत) र आगन्तुक १६२ (९.८८ प्रतिशत) पाइए। अध्ययनबाट तत्सम र तद्भव शब्दभन्दा पनि आगन्तुक शब्द अझै न्यून रहेको पाइयो। नेपालको संविधान नेपाली भाषामा लेखिएको भए पनि यसमा तद्भव शब्दको बाहुल्य पाइएन। मौलिक स्रोतमध्ये तत्सम शब्दलाई नै प्राथमिकता दिइएकाले नेपाली भाषाको मूल कानूनमा संस्कृत शब्दको महत्त्व उल्लेख्य मात्रामा रहेको देखियो। नेपाली भाषा नेपालको सरकारी कामकाजको भाषा भएकाले नेपालका हरेक नियम कानून सबैले बुझ्न सक्ने गरी नेपाली भाषामा लेखिनु पर्ने, सरल सम्प्रेष्य र शुद्ध भाषिक प्रयोग हुनुपर्ने कुरामा पनि सजगता अपनाइएको देखिन्छ। प्रस्तुत अध्ययनबाट हरेक नियम कानूनको भाषासम्बन्धी अध्ययन गर्ने भावी अनुसन्धाताहरूका लागि यथोचित सहयोग पुग्ने अपेक्षा गरिएको छ।

शब्दकुञ्जी : आगन्तुक, कानून, तत्सम, तद्भव, लोकतन्त्र, संविधान

परिचय

संविधान भनेको देशको आधारभूत कानूनी दस्तावेज हो। यसमा देशका लागि सरकारको गठनलगायत देशको कानून, नियम, विनियम आदि निर्माण गर्ने व्यवस्थाबारे प्रस्ट्याइएको हुन्छ। नेपालमा सर्वप्रथम वि.सं. २००४ माघ ३ मा श्री ३ पद्मशमशेरबाट संविधान जारी भएको थियो। वि.सं. २००७

सालको परिवर्तनपछि वि.सं. २००७ चैत्र २९ मा श्री ५ त्रिभुवनबाट अन्तरिम शासन विधान जारी भएको देखिन्छ । वि.सं. २०१५ फागुन १ मा श्री ५ महेन्द्रले नेपाल अधिराज्यको संविधान जारी गरेको पाइन्छ । वि.सं. २०१९ पुस १ मा र वि.सं. २०४७ कार्तिक २३ मा पनि संविधान जारी भएको देखिन्छ । सशस्त्र द्वन्द्वपछि वि.सं. २०६३ मा अन्तरिम संविधान जारी भएको थियो । वर्तमानमा नेपालको संविधान २०७२ लागु भएको छ । यो सबैभन्दा उच्च कानुनी दस्तावेज हो । यो वि.सं. २०७२ आश्विन ३ गतेका दिन संविधान सभाका अध्यक्षद्वारा प्रमाणित तथा राष्ट्रपतिद्वारा हस्ताक्षर भई राजपत्रमा प्रकाशित भएपछि लागु भएको हो । यसमा जम्मा ३५ भाग र यसअन्तर्गत जम्मा ३०८ धाराको व्यवस्था गरिएको छ । यसमा ९ अनुसूचीको व्यवस्था रहेको छ । भाग-१ प्रारम्भिकको धारा ६ मा राष्ट्रभाषाका बारेमा उल्लेख गरिएको छ । यसमा नेपालमा बोलिने सबै मातृभाषाहरू राष्ट्रभाषा हुन् भन्ने कुरा उल्लेख छ । धारा ७ को उपधारा (१) मा देवनागरी लिपिमा लेखिने नेपाली भाषा नेपालको सरकारी कामकाजको भाषा हुने कुरा उल्लेख छ । उपधारा (२) मा नेपाली भाषाका अतिरिक्त प्रदेशले आफ्नो प्रदेशभित्र बहुसङ्ख्यक जनताले बोल्ने एक वा एकभन्दा बढी अन्य राष्ट्रभाषालाई प्रदेश कानूनबमोजिम प्रदेशको सरकारी कामकाजको भाषा निर्धारण गर्न सक्ने व्यवस्था छ र उपधारा (३) मा भाषासम्बन्धी अन्य कुरा भाषा आयोगको सिफारिसमा नेपाल सरकारले निर्णय गरेबमोजिम हुने भनिएको छ (पृ. ३-४) । नेपालको संविधानको भाग ३ मौलिक हक र कर्तव्यअन्तर्गत धारा १८ को उपधारा (३) मा भाषाका आधारमा कुनै पनि व्यक्तिलाई भेदभाव नगरिने कुरा उल्लेख छ (पृ. ९) । यस संविधानको भाग ३ धारा ३२ उपधारा (१) मा प्रत्येक व्यक्ति र समुदायलाई आफ्नो हक प्रयोग गर्ने हक हुने कुरा उल्लेख छ (पृ. १५) । यसको भाग ३२ धारा २८७ अन्तर्गत भाषा आयोगको व्यवस्था गरिएको छ । यसमा भाषाहरूको अध्ययन, अनुसन्धान र अनुगमन गर्ने कार्य भाषा आयोगको हुने कुरा उल्लेख छ (पृ. १५५) । यसप्रकार भाषालगायत नेपालका हरेक नियम कानून तथा राष्ट्रिय गतिविधिहरू नेपालको संविधानअनुरूप सञ्चालित छन् । नेपाल बहुभाषिक मुलुक भए तापनि नेपालको संविधान नेपाली भाषामा रहेको छ । नेपालको राष्ट्रभाषा तथा सम्पूर्ण राष्ट्रिय गतिविधिको माध्यम पनि नेपाली भाषालाई मानिएको छ । कतिपय भाषाको स्थानीय पाठ्यक्रम निर्माण गरी पठनपाठनका प्रयास पनि भइरहेका छन् तापनि नेपाली भाषा सबैको साझा भाषा, सम्पर्क भाषा, शिक्षाको माध्यम, राष्ट्रिय गतिविधिको माध्यम र सरकारी कामकाजको माध्यमका रूपमा प्रयोग हुँदै आएको छ । नेपाली भाषा राष्ट्रियस्तरका सूचना सञ्चारको प्रमुख माध्यमसमेत बनेको छ । नेपाली भाषामा व्याकरण, शब्दकोश आदि निर्माण भएका छन् । यसका वैज्ञानिक प्राविधिक शब्दावलीको विकास गर्ने प्रयास भएका छन् । वर्तमान सन्दर्भमा यसको प्रयोग राष्ट्रिय अन्तर्राष्ट्रिय स्तरसम्ममा भइरहेको कुरालाई सबैले स्वीकार गरेका छन् ।

नेपाली भाषा शब्दस्रोतका दृष्टिले पनि सम्पन्न रहेको छ । यसमा तत्सम, तद्भव र आगन्तुक स्रोतका शब्दहरूको प्रशस्त उपयोग हुँदै आएको छ । विज्ञान प्रविधिको विकासले नेपाली भाषामा आगन्तुक शब्दको प्रयोग बढ्दै गएको छ । देशभित्रका अन्य भाषाभाषीबाट आएका स्वदेशी आगन्तुक शब्दका साथै विदेशी आगन्तुक शब्दलाई पनि नेपाली भाषाले सहज रूपमा ग्रहण गर्दै आफ्नो शब्दभण्डारलाई सम्पन्न बनाउँदै आएको छ । त्यसैले देशको मूल कानूनका रूपमा रहेको नेपालको संविधान २०७२ मा के कस्ता शब्दस्रोतको उपयोग भएका होलान् भन्ने समस्यामा प्रस्तुत अनुसन्धानात्मक लेख केन्द्रित रहेको छ ।

नेपाली भाषालाई सर्वप्रथम वि.सं. २०१५ को नेपाल अधिराज्यको संविधानले पहिलो स्थान दिएको पाइन्छ । वि.सं. २०१९ को संविधानले नेपाली भाषालाई राष्ट्रभाषाको स्थान दिएको पाइन्छ भने वि.सं. २०६३ को अन्तरिम संविधान र २०७२ को नेपालको संविधानले पनि नेपाली भाषालाई उल्लेख्य महत्त्व दिएको छ । यसलाई आधुनिकीकरणको प्रक्रियामा लैजाने तथा यसको प्रयोगविस्तार गर्ने कार्यहरू पनि केही न केही रूपमा भइरहेको देखिन्छ । वि.सं. २०६८ को जनगणनाले नेपालमा बस्ने १२५ जातिलाई १२३ ओटा भाषामा विचार विनिमय गर्ने अवसर रहेको पुष्टि गरेको छ (पौडेल र भट्टराई, २०७७, पृ. २५९) । नेपालको संविधान २०७२ मा नेपाली भाषाको प्रयोगलाई मुलुकभित्र र बाहिर सूचना यातायात आदि क्षेत्रमा जोड दिने कुरा उल्लेख छ । यसै गरी नेपालका भाषा योजनाहरूमा भाषिक न्यायको सिद्धान्तलाई कायम राख्न भाषा आयोग कटिबद्ध हुने कुरा उल्लेख छ (पौडेल र भट्टराई, २०७७, पृ. १३२) । नेपाली भाषाका शब्दभण्डारलाई हेर्दा कतिपय शब्दहरू कुन स्रोतबाट आएका हुन् भन्नसमेत कठिन हुने देखिन्छ । कुनै शब्दमा आगन्तुक स्रोतका आधेय तत्त्व जोडिएका हुनाले तिनलाई तत्सम, तद्भव र आगन्तुक भनेर स्पष्ट सीमा निर्धारण गर्न पनि कठिन हुने देखिन्छ । यस प्रकार नेपालको संविधानमा नेपाली भाषाका शब्दभण्डारमध्ये कुन स्रोतका शब्दलाई के कति मात्रामा उपयोग गरिएको छ भन्ने कुरा प्रस्तुत अध्ययनको मूल समस्या हो ।

प्रस्तुत अनुसन्धानात्मक लेख निम्नलिखित उद्देश्यमा केन्द्रित रहेको छ :

- नेपाली भाषामा प्रयुक्त शब्द स्रोतको परिचय दिनु र
- नेपालको संविधान २०७२ मा प्रयुक्त शब्दस्रोतको पहिचान गर्नु ।

पूर्वकार्यको समीक्षा

पोखरेल (२०४८) ले राष्ट्रभाषा पुस्तकमा नेपाली भाषाका शब्दहरूलाई मौलिक र आगन्तुक गरी दुई प्रकारमा विभाजन गरेका छन् । उनले मौलिकअन्तर्गत तत्सम, तद्भव र अर्धतत्सम अनि आगन्तुकअन्तर्गत भारोपेली र अभारोपेली गरी दुई प्रकारमा विभाजन गरेका छन् । ओझा (२०६६) ले नेपालको अन्तरिम संविधान, २०६३ मा प्रयुक्त पारिभाषिक शब्दावलीको अध्ययन शीर्षकमा शोधकार्य सम्पन्न गरेका छन् । उनले आफ्नो शोधमा तीन सय पैतिसओटा पारिभाषिक शब्दावलीको अध्ययन गरेको पाइन्छ । उनले नेपालको अन्तरिम संविधान, २०६३ मा प्रयुक्त पारिभाषिक शब्दावलीको सङ्कलन गरी त्यस्ता शब्दावलीको अङ्ग्रेजीमा रूपान्तरणसमेत गरेको पाइन्छ ।

रेग्मी (२०६८) द्वारा कक्षा दशको नेपाली पाठ्यपुस्तकको कविता विधामा प्रयुक्त शब्दभण्डारको अध्ययन शीर्षकमा शोधकार्य सम्पन्न गरिएको पाइन्छ । प्रस्तुत शोधमा कक्षा दशको नेपाली पाठ्यपुस्तकमा रहेका कविता विधामा प्रयुक्त शब्दभण्डारलाई पदवर्गगत र स्रोतको आधारमा वर्गीकरण गरिएको पाइन्छ । अधिकारी र भट्टराई, (२०७० दो.सं.) द्वारा प्रयोगात्मक नेपाली शब्दकोश को सम्पादन भएको देखिन्छ । यस कोशमा शब्दको स्रोत, उच्चारण, व्युत्पत्ति जस्ता कुरालाई प्रस्तुत गरिएको छ । देवकोटा (२०७४) ले कक्षा सातको नेपाली भाषा पाठ्यपुस्तकमा प्रयुक्त शब्दहरूको शैक्षणिक शब्दकोश निर्माण शीर्षकमा शोधकार्य सम्पन्न गरेका छन् । उक्त शोधकार्यमा कक्षा सातको नयाँ नेपाली पाठ्यपुस्तकमा प्रयुक्त शब्दहरूको स्रोतका बारेमा अध्ययन गरिएको छ ।

शर्मा (२०७५) ले कानुनका क्षेत्रमा प्रयुक्त पारिभाषिक शब्दको सङ्कलन तथा वर्गीकरण शीर्षकमा स्नातकोत्तर शोधपत्र तयार पारेको पाइन्छ । यसमा कानुनी नेपाली शब्दको सङ्कलन र वर्गीकरण गर्ने उद्देश्य रहेको छ । यसमा कानुनी नेपाली शब्दलाई कार्यका आधारमा, स्रोतका आधारमा सङ्कलन र वर्गीकरण गरिएको छ । यस शोधकार्यमा जम्मा ५८९ ओटा सङ्कलित कानुनी शब्दमध्ये अव्युत्पन्न कानुनी शब्द ९३, व्युत्पन्न कानुनी शब्द ३०२, स्रोत नखुलेका १९४ शब्द रहेको निष्कर्ष निकालेको पाइन्छ ।

यस्ता नेपाली भाषाका शब्दस्रोतका बारेमा प्रशस्त अध्ययन भएका देखिन्छन् तापनि नेपालको संविधान २०७२ मा प्रयुक्त शब्दहरूको स्रोतका आधारमा हालसम्म अध्ययन भएको पाइएन । त्यसैले उक्त रिक्तता पूरा हुने अपेक्षा राखी प्रस्तुत अनुसन्धानात्मक लेख तयार पारिएको हो ।

अध्ययन विधि

प्रस्तुत लेख गुणात्मक अनुसन्धान पद्धतिअनुरूप दस्तावेज अध्ययन विधिमा आधारित रहेको छ । पुस्तकालयीय अध्ययन प्रक्रियाबाट तथ्यहरू सङ्कलन गरिएको छ । प्राथमिक स्रोतका रूपमा नेपालको संविधान २०७२ बाट सङ्कलित शब्दहरू रहेका छन् भने द्वितीयक स्रोतका रूपमा नेपाली भाषाका शब्द स्रोतका बारेमा लेखिएका पुस्तकहरू, शब्दकोशहरू पत्रपत्रिका आदि रहेका छन् । यिनबाट तथ्यहरूको अवलोकन, रेखाङ्कन, टिपोट, सूचीकरण वर्गीकरण, तुलना, वर्णन र विश्लेषण गर्दै निष्कर्षमा पुगिएको छ ।

सैद्धान्तिक पर्याधार

यस खण्डमा शब्दस्रोतको परिचय, शब्दलाई वर्गीकरण गर्ने आधार र कानुनी दस्तावेजहरूमा प्रयोग हुने शब्दका विशेषताबारे प्रकाश पारिएको छ :

शब्दस्रोतको परिचय तथा वर्गीकरण

स्वतन्त्र रूपमा प्रयोग हुने भाषाको सबैभन्दा सानो अर्थपूर्ण एकाइलाई शब्द भनिन्छ । शब्द रूपभन्दा ठुलो र पदावलीभन्दा सानो भाषिक एकाइ हो । शब्दलाई मूलतः स्रोत, बनोट र कार्य गरी तीन आधारमा वर्गीकरण गर्न सकिन्छ । भाषाका शब्दहरू आउने ठाउँ वा क्षेत्र नै स्रोत हो । नेपाली भाषाको जननी संस्कृत भाषा भएकाले यस भाषामा संस्कृत शब्दहरूको बाहुल्य रहनु स्वभाविकै छ । नेपाली भाषामा स्वदेशी तथा विदेशी विभिन्न भाषाबाट आएका शब्दहरू पनि प्रशस्त रहेका छन् ।

स्रोतका आधारमा नेपाली भाषामा प्रयुक्त शब्दहरूलाई तत्सम, तद्भव र आगन्तुक गरी तीन प्रकारमा विभाजन गर्न सकिन्छ । नेपाली भाषाका शब्दलाई स्रोतका आधारमा मौलिक र आगन्तुक गरेर दुई प्रकारमा विभाजन गरेको पाइन्छ । मौलिक शब्दअन्तर्गत तत्सम, तद्भव र अर्धतत्सम अनि आगन्तुक अन्तर्गत भारोपेली र अभारोपेली गरी दुई प्रकारमा विभाजन गरेको पनि पाइन्छ (पोखरेल, २०४८, पृ. १३४) । नेपाली भाषाको मूल भाषा संस्कृतबाट आफ्नो रूप नफेरिई उस्तै रूपमा आएका शब्दलाई तत्सम शब्द भनिन्छ (लम्साल, २०७२, पृ. १०३) । संस्कृतबाट आफ्नो रूप केही परिवर्तन गरी नेपालीमा आएका शब्दहरूलाई तद्भव शब्द भनिन्छ । तद्भव शब्दहरू प्रायः संस्कृतबाट प्राकृत भाषा हुँदै नेपालीमा भाषामा

रूप परिवर्तन भई आएका देखिन्छन् । नेपाली भाषाको आमा प्राकृत र हजुरआमा संस्कृत हो (पोखरेल, २०४८, पृ. १३१) । तत्सम र आगन्तुक शब्दबाहेक अनुकरणात्मक शब्दहरूलाई पनि तद्भव शब्द नै भन्ने गरिन्छ ।

आगन्तुक शब्द तत्सम र तद्भवबाहेकका शब्द हुन् । “संस्कृतबाहेक अन्य विभिन्न भाषाबाट नेपालीमा आएका शब्दलाई आगन्तुक भनिन्छ (अधिकारी, २०६३, पृ. १९) ।” यी विदेशी तथा स्वदेशी भाषाबाट नेपालीमा आएका शब्दहरू हुन् । विदेशी आगन्तुक, जस्तै : अङ्ग्रेजीबाट आएका : रेडियो, कोट, स्कुल, टिकट, डाक्टर, फोटो आदि । अरबीबाट आएका : गरिब, किताब, जुलुस, हाकिम आदि । हिन्दीबाट आएका : कच्चा, अचम्म, भापट, आपस आदि । आगन्तुक शब्दअन्तर्गत नेपालमै बोलिने राष्ट्रिय भाषा तथा नेपालबाहिरका सबै भाषाका शब्द पर्दछन् (बराल र एटम, २०६७, पृ. ३८) । आगन्तुक शब्द अन्य विभिन्न भाषाबाट पनि आएका पाइन्छन् । साथै नेपाली शब्दलाई बनोटका आधारमा मूल र व्युत्पन्न गरी दुई प्रकारमा, कार्यका आधारमा नाम, सर्वनाम, विशेषण, क्रियापद, क्रियाविशेषण, नामयोगी, संयोजक, विस्मयादिबोधक र निपात गरी नौ प्रकारमा वर्गीकरण गरिन्छ । प्रस्तुत लेख मूलतः शब्दस्रोतसँग सम्बन्धित रहेको छ ।

कानुनी भाषा : संविधान देशको कानुन भएकाले यसमा कानुनी भाषाको प्रयोग गर्नु आवश्यक हुन्छ । कानुनको भाषा सरल, स्पष्ट हुनु पर्दछ । भाषिक जटिलतालाई त्यागेर सरलतामा नै विद्वता झल्कने कुरालाई आत्मसात गर्नुपर्दछ । विगतमा संस्कृत, अरबी, फारसी, उर्दू एवं हिन्दी शब्दहरूको प्रयोग अत्यधिक गरिन्थ्यो । अहिले पनि त्यस्ता खाले कतिपय शब्दहरूले निरन्तरता पाइरहेका छन् । अभ्र आजकल त अङ्ग्रेजी शब्दहरूको प्रयोग बढी मात्रामा हुने गरेको छ । सम्भव भएसम्म नेपाली भाषाकै प्रयोग गर्नपर्छ (कानुन आयोग) । प्रचलित भइसकेका आगन्तुक शब्दको प्रयोग गर्न भने हिचकिचाउनु हुँदैन । वर्तमान अवधारणा बोकेका अङ्ग्रेजी वा अन्य भाषाका शब्दलाई रूपान्तरण गरी नेपाली भाषामा प्राविधिक शब्द निर्माण गर्न आवश्यक हुन्छ तर शब्दको रचना आफूखुसी गर्न हुँदैन । यसमा कुनै धर्म, जातजाति, वर्ग, लिङ्ग तथा उमेर समूहलाई होच्याउने, अपमान गर्ने खालका शब्दहरू प्रयोग गर्नु उपयुक्त हुँदैन । अमर्यादित, अश्लील, हेपाहा, गालीबोधक शब्दको प्रयोग पनि प्रयोग गर्नु हुँदैन । समाजमा फुट पैदा गर्ने, आक्रामक भाव झल्कने खालका शब्दको प्रयोग पनि उचित हुँदैन । यसै गरी अर्थको अनर्थ लाग्ने शब्द, उखान टुक्काको प्रयोगलाई पनि उपयुक्त मानिँदैन । कानुनी दस्तावेजहरूमा सन्दर्भ सामग्रीको प्रयोग पनि उचित हुँदैन । वर्णविन्यासगत तथा अन्य प्रकृतिका व्याकरणिक त्रुटिले पनि संविधानको भाषालाई प्रभावित गर्ने कुरामा कानुन तथा संविधान निर्माता सजग रहनु पर्दछ ।

नतिजा र छलफल

यस अध्ययनमा नेपालको संविधानमा प्रयुक्त शब्दलाई स्रोतका आधारमा वर्गीकरण गरी यसप्रकार प्रस्तुत गरिएको छ :

नेपालको संविधानमा प्रयुक्त तत्सम शब्दको स्थिति

नेपालको संविधानमा प्रयुक्त तत्सम शब्दहरूलाई क्रमशः तलको सूचीमा प्रस्तुत गरिएको छ । यस सूचीमा कोष्ठकभित्र रहेको अङ्कले सुरुको वर्णसँग सम्बन्धित शब्दको सङ्ख्यालाई सङ्केत गरेको छ :

अंश, अङ्कित, अखण्डता, अक्षुण्ण, अधिकार, अग्रगामी, अन्त्य, अवधारणा, अमान्य, अधीन, अभिलेख, अभिव्यक्ति, अवहेलना, अपराध, अवस्था, अल्पसंख्यक, असहाय, अवरुद्ध, अभियोग, अनुसन्धान, अमानवीय, अचल, अधिग्रहण, अवलम्बन, अभ्यास, अनतिक्रम्य, अनिवार्य, अवसर, अनुकूल, अनाथ, अशक्त, अनुशासन, अधिकतम, अत्यधिक, अभिवृद्धि, अग्राधिकार, अनियमितता, अविभाज्य, अङ्गीकृत, अतिक्रमण, अपहरण, अन्तरपुस्ता, अन्तर्राष्ट्रिय, असमानता, अस्थायी, अधिकारपत्र, अनुपस्थिति, अभिभारा, अन्यत्र, अन्तिम, अधिवेशन, अनुरोध, अनुपात, अर्थ, अवधि, अर्थमन्त्री, अद्यावधिक, आयु, आपूर्ति, अनुभव, असंलग्नता, अनुसरण, अयोग्य, अविश्वास, अनुदान, अनुमतिपत्र, अस्वीकृत, आशंका, आन्तरिक, अवरोध, अवज्ञा, अर्धन्यायिक, अख्तियार, असफल, अनुमान, अनुमोदन, अनुगमन, अपाङ्गता, अधिकारी, अभियोग, अमानवीय, अपमानजनक, आवश्यक, अनुचित, अनुकूल, अभाव, आबद्ध, अस्वीकृत, अपर्याप्त, अख्तियारी, अवाञ्छनीय, अधिवक्ता, असमर्थ, अन्वेषण, अधिकारपृच्छा, अतिरिक्त, अध्यापन, अनङ्कित, अर्धवृत्ताकार, अव्यावहारिक, अवाञ्छनीय, अवकाश, अध्यापन, अनुपात, अवधि, अन्य, अनुसूची, अनुपस्थित, अनुमतिपत्र, अटल, गतिविधि, अतिक्रमण, अयोग्यता, अवशिष्ट, अनुदान, अवधि, अवकाश (११६) ।

आत्मसम्मानपूर्वक, आधारित, आकस्मिक, आर्य, आवास, आस्था, आत्मसात, आय, आन्दोलन, आवधिक, आर्थिक, आधार, आकांक्षा, आस्थावान, आबद्ध, आधारभूत, आकार, आवासीय, आदिवासी, आधुनिकीकरण, आत्मनिर्भर, आचरण आँचल, आयुक्त, आविष्कार, आवाहन, आणविक, आरक्ष, आक्रमण, आदेश, आचारसंहिता, आशंका, आपूर्ति, आयुर्वेदिक, आर्जन, आयोग, आम, आन्तरिक (३८) । इतिहास, इत्यादि, इमानदारीपूर्वक (३) । उत्पीडन, उन्मुख, उल्लेख, उपभोग, उचित, उत्पादन, उपराष्ट्रपति, उत्पादकत्व, उद्योग, उत्पत्ति, उपधारा, उच्चता, उद्देश्य, उत्थान, उत्पीडित, उपभोक्ता, उपचार, उल्लिखित, उपज, उपयुक्त, उपाय, उल्लंघन उत्तरदायी, उपसभामुख, उपर, उपकरण, उपस्थित, उच्च, उद्यमशीलता, उत्खनन, उद्योगधन्दा, उन्नयन, उपाधिउद्धार, उत्प्रेषण, उत्सर्ग, उन्नतिशील, उड्डयन, उपस्थिति, उपेक्षा, उपनिर्वाचन, उपलब्ध, उत्तराधिकार, उपदान (४४) । ऊर्जा (१) । ऋण (१) । एक, एकता, एकात्मक, एकल, एवं, एकाधिकार, एकद्वार (७) । ऐक्यबद्धता, ऐतिहासिक (२) औद्योगिक, औद्योगिकीकरण, औषधि (३) ।

कला, कार्यान्वयन, कृषि, कूटनीतिक, कोण, कल्पित, कोटीकोटी, केन्द्रीकृत, कार्य, क्षेत्रीय, क्षेत्र, कर्तव्य, केवल, कारण, क्षतिपूर्ति, कार्यस्थल, कर, कार्यप्रणाली, क्षमता, कृषक, केन्द्र, कुल, कार्यालय, कार्यकाल, कार्यक्षमता, कार्यविधि, कृषियोग्य, कार्यकारिणी, कुरीति, कपिलवस्तु, कारागार, कार्यपालिका, कार्यक्रम, कर्णाली, कायम, कृत्रिम, कार्यकालभर, कार्यान्वयन, क्षमायाचना, क्षेत्री, कर्मचारी, कार्यविधि, क्रियाशील, कोटीकोटी, केवल, क्रम, क्रान्ति, क्रमशः गरी (४८) ।

खस, खाद्य, ख्याति, खाद्यान्न, खानी (५) । गुणस्तरीय, गठन, गतिविधि, गौरवपूर्ण, गणतन्त्रात्मक, गान, गोपनीयता, गम्भीर, गुठी, गर्भावस्था, गणपूरक, ग्राह्य, गोप्य, गणतन्त्र, गौरव, गुप्तचर, गाउँपालिका, गणना (१८) । घण्टा, घृणा, घोषणा (३) । चन्द्र, चलचित्र, चिकित्सा, चरम, चल, चेतना, चरित्र, चलाए

(८) । छाप, छापाखाना, छात्रवृत्ति (३) जलउत्पन्न, जनमुखी, जलवायु, जीविकोपार्जन, जवाफदेही, जिल्ला, जाति, जनसांख्यिक, जनसहभागिता, जलस्रोत, जनता, जन, जात, जातीय, जन्म, जनजाति, जीवनयापन, जनपक्षीयता, जनउत्तरदायी, जैविक, जनशक्ति, जनस्वास्थ्य, जनसंख्या, जनसाधारण, जनगणना, जय, जनआन्दोलन, जोखिम, जनमत, जीवन, ज्येष्ठ, ज्ञान, ज्ञानभूमि (३३) । टीका-टिप्पणी, टुहुरा (३) । ठकुरी (१) । तथ्यांक, तुलनात्मक, तवर, तयारी, तत्काल, तत्सम्बन्धी, तुलनात्मक, तह, तरत्याग, त्रिकोण, तीव्र, (१२) । दसी, द्रष्टव्य, दल, दृष्टि, दक्षिण, दुरुत्साहन, दम्पती, दायित्व, दिगो दर्शन, दीर्घकालीन, देवनागरी, दण्डनीय, दलित, द्वन्द्वपीडित, दुरुपयोग, दशनामी, दश, दृष्टिविहीन, दुर्व्यवहार, दुर्गम, दर्शाउने, दास, दूरसञ्चार, दुवै, देश (२६) । धन, धार्मिक, धर्म, धर्मनिरपेक्ष धारा, धनकुटा, धनुषा, धर्मपुत्र, धर्मपुत्री, ध्यान (१०) । नेपाली, नागरिक, निरंकुश, न्याय, निर्माण, निर्वाचन, न्यायपालिका, निहित, निशान, नागरिकता, निष्पक्ष, निर्धारण, नैतिकता, निवारक, निर्मम, निकाय, नामकरण, नीति, निर्देशित, नियमन, निर्यात, निरुत्साहित, निर्णय, न्यूनीकरण, निरंकुश, निलम्बन, नकारात्मक, निर्मूल, नगरपालिका, निजी, नियन्त्रण, न्यून, नियोजन, निष्पक्ष, निश्चित, नियुक्ति, निर्णायक, न्यायाधीश, नियत, नियमित, नियमावली, निरूपण, निवेदन, नवीकरण, निरन्तर, निवृत्तिभरण, न्यायिक, निरन्तर, निरीक्षण, निषेधाज्ञा, निर्धा, न्यायपूर्ण, न्यायोचित, निराकरण, निष्ठावान, नवीकरणीय, नदी, न्यायसम्पादन, नेता, नियतपूर्वक, निःशुल्क, निर्मम, नीच, निर्देशित, नियोजन, निहित, निश्चित, निर्वाचक, नियमित, नवीकरण, निष्क्रिय, नैतिक, निरीक्षण, नामावली, निशान, निकुञ्ज, निवारण, निगम (७८) ।

परिवर्तन, पूर्वप्रमुख, प्रारम्भ, प्रकाशन, प्रमाणीकरण, प्रस्तावना, पीडित, प्रकार, प्रवर्धन, प्रतिस्पर्धात्मक, प्रणाली, प्रतिबद्ध, पूर्ण, प्रारम्भिक, प्रत्येक, प्रयोग, प्रदेश, प्रादेशिक, प्राप्त, पितृत्व, परिणत, प्रदान, पहिचान, प्रमाणपत्र, प्राप्ति, पुनःप्राप्ति, परिचय, पारित, प्रतिकूल, प्रतिबन्ध, पारिश्रमिक, प्रसारण, प्रवाह, प्रचलित, पुनःस्थापना, परिवार, प्रगतिशील, पत्राचार, प्रथा, परम्परा, पहुँच, प्रहरी, प्राविधिक, पालना, पक्षी, पोषण, प्रोत्साहन, पुर्पक्ष, परिमाण, पारदर्शी, पाल, पाठ्य, पुनर्विचार, प्रत्येक, पूरक, प्रदत्त, प्रचलन, प्रजनन, प्रजाति, पारस्परिक, प्रवर्धन, प्रत्याभूति, पूर्वकर्मचारी, पारदर्शी, पुरातात्विक, परिचालन, प्रतिस्पर्धा, प्रतिफल, पूँजी, पूर्वाधार, प्रविधि, प्रतिभा, प्रकोप, प्रभाव, प्रदूषण, पूर्वसूचित, पर्यावरणीय, पुस्तकालय, प्रोत्साहित, प्रभावकारी, प्रत्याभूत, परिपूर्ति, प्रकृति, पर्यटन, पञ्चशील, पुनरावलोकन, प्रतिवेदन, प्रधानमन्त्री, प्रश्न, पृथकीकरण, प्रतिनिधित्व, प्रमुख, पद, पदावधि, पदभार, प्रस्ताव, पालन, पराजित, प्रादेशिक, पूर्ति, पतन, पदमुक्त, प्रस्तुत, प्रथम, परिषद, परामर्श, प्रभावहीन, प्रत्यक्षीकरण, परमादेश, प्रतिषेध, पुनरावेदन, पदमुक्त, प्रभावहीन, प्रशासन, प्रतिशत, परीक्षा, प्रतियोगितात्मक, प्रतिवादी, पालिका, प्रक्रिया, प्राधिकरण, प्रतिष्ठान, प्रमाण, पूर्वाधार, प्रत्यायोजन, प्रमाणीकरण, प्रादेशिक, प्रतिनिधि, प्रसङ्ग, पहाड, प्रयोग, परिणत, परमादेश, परराष्ट्र, प्राचीन, परिवहन, पूर्वाधार, पुनर्लाभ, प्रतिस्पर्धी, पदीय, प्रतिरक्षा, प्रतिबन्ध, प्रवाह, प्रतिनिधित्व, पुनःस्थापना, पीडक, परिवर्तन, प्रोत्साहन, विविधीकरण, प्रकृति, पूर्वसावधान, प्रभावकारी, पुर्पक्ष, प्रविधि, प्रतिभा, प्रभाव, पूर्वसावधानी, प्रत्याभूत, परिपूर्ति, परिमाण, प्राप्त, प्रतिशत, प्रादेशिक, पतन, पुनर्विचार, प्राकृतिक, उत्प्रेषण, प्रभावकारी, पशु, पशुपालन, परम्परा, प्रजाति, प्रकोप, पर्वत, पश्चिम, पत्राचार, परीक्षण (१७७) ।

बलिदान, बहुजातीय, बहुभाषिक, बहुधार्मिक, बहुसांस्कृतिक, बहुदलीय, बहुजातीय, बहुसंख्यक, बालबालिका, बाध्य, बन्द, बन्धक, बौद्धिक, बाल, बल, बस्ती, बालश्रम, ब्राम्हण, बाह्य, बदनियत, बलिदान, बहुल, बन्दी, बन्देज, बहुउपयोगी, बजार, बहिष्करण, बहुमत, बहुलवाद, बहुलता, बन्दीप्रत्यक्षीकरण, बदनियतपूर्वक, बाह्य, विच (३४) । भक्तपुर, भौगोलिक, भाषिक, भेदभाव, भंग, भूमि, भूउपयोग, भू-स्वामित्व, भूगोलविद, भोगाधिकार, भोजपुर, भाग, भ्रष्टाचारमुक्त, भूभाग, भर्ना, भ्रामक, भूमिहीन, भविष्य, भरपदो, भोग (२९) । मुक्त, मान्य, मैत्री, महसूल, मितव्ययी, मापदण्ड, मिति, मौलिक, मान्यता, मूल, मातृभाषा, मातृत्व, महिला, माध्यम, मुलुक, मृत्युदण्ड, मनोरञ्जन, मातृत्व, मेची-महाकाली, मताधिकार, मनोनयन, मातृभूमि, मन्त्रालय, मर्यादा, मार्गनिर्देशन, मतदाता, महाभियोग, मनोनीत, मातहत, महत्त्व, मध्यस्थता, मन्त्री, महालेखा, मानक, माध्यमिक, मानसिक, मनोवैज्ञानिक, मनोरञ्जन, मानव, मूल्य, मान्यता, मर्यादित, मूल्यांकन, मनोनयन, मन्त्रिपरिषद, मर्का, मानवोचित, मुख्यमन्त्री, मातृमृत्युदर, मान्यता, मेलमिलाप, मण्डल, मतभार, मत, संसद, मतभिन्नता, मितव्ययी, मान्य, मानसिक, मार्फत, मापदण्ड, महसूल, मेची-महाकाली, मुद्रण, मत, मृत्यु (६८) ।

यथासम्भव, युक्त, यौनिक, योग्य, योजनाबद्ध, योगदान, युवा, योग्यता, यथाशीघ्र, युद्ध, यातना, योद्धा, यातायात, यौनजन्य (१४) । राहत, रूप, राजपत्र, राष्ट्रहित, राज्यव्यवस्था, राज्य, राष्ट्र, राजकीयसत्ता, रक्षा, राष्ट्रभाषा, रोक, राज्यद्रोह, रचना, रंग, राजस्व, राष्ट्रपति, राष्ट्राध्यक्ष, राष्ट्रिय, राजदूत, राजनीतिक, राष्ट्रसेवक, राज्यशक्ति, रिक्त, रकमान्तर, राजपत्रअनङ्कित, राज्यमन्त्री, राजपत्राक्ति, राजपत्र, रूपन्देही, राष्ट्रसंघ, रूपान्तरण, राज्यद्रोह, रूपान्तरणक, राष्ट्रसंघ (३४) । लैंगिक, लोकतन्त्र, लोक्तन्त्रात्मक, लेखापरीक्षण, लिपि, लाभ, लिंग, लक्ष्य, लोककल्याणकारी, लोपोन्मुख, लोक्तान्त्रिक, लेखा, लोकसेवा, लिखत, लोकमार्ग, ललितपुर, लेख, लिपि (१८) ।

विधेयक, विभेद, विविधतायुक्त, वर्गीय, विकास, व्यवस्था, व्यक्ति, विवरण, वञ्चित, वंशज, विदेशी, विना, व्यापार, व्यवसाय, विरुद्ध, विद्वेष, वैवाहिक, वैचारिक, वासस्थान, व्यक्तित्व, विवाह, विस्थापित, विश्व, व्यावसायिक विविधीकरण, व्यापारिक, वन, वनस्पति, वार्षिक, वित्तीय, वञ्चितीकरण, विश्वास, विघटन वरिष्ठतम, वैकल्पिक, विषय, विचार, विभिन्न, विशेष, वैज्ञानिक, विपन्न, वस्तु, व्यवसायी, वितरण, वंशीय, विकेन्द्रीकरण, विस्तार, व्यवस्थापन, वन्यजन्तु, वृद्धि, व्यवस्थित, वाक्, विचाराधीन, विनियोजन, व्यय, विदेशी, व्याख्या, व्यासार्द्ध, वृत्त, वृत्ताकार, विन्दु, वीर, विभेद, विशाल, विविधता, व्यवस्था, विकास, वर्ष, विघ्न, वरिष्ठ, विभागीय, वादी, वाञ्छनीय, वाक्स्वतन्त्रता, विद्युतीय, विषादि, विद्यमान, वाणिज्य, व्यवसायीकरण, विस्थापित विपन्न, विशेष, विशृङ्खलता, विज्ञान, विशिष्टीकृत, विश्वविद्यालय, वाणिज्यशास्त्र, विस्थापित, विवाद, विपरीत, वातावरण, वासस्थान, विद्यालय, शैक्षिक, विश्व, वार्षिक, वित्तीय, विश्वास, विशेषाधिकार, व्यवस्थापिकीय, विपद, व्यासार्द्ध, वीर, विशेष, विनिमय, वर्ण, वैचारिक, वितरण, विस्तार, व्यवस्थित, वा, विश्वास, वैज्ञानिक, विशाल, व्यक्तित्व, विश्वशान्ति, वृद्ध (११६) ।

शक्ति, शान्तिपूर्वक, शीर्षक, शपथग्रहण, शोषण, शपथ, शान्ति, शासन, शासकीय, श्रेणी, श्रव्य, श्रव्यदृश्य, शिक्षा, शब्द, शिशु, शुल्क, श्रमिक, शंका, श्रम, शिष्टाचार, शारीरिक, शत्रु, शैक्षिक (२३) । समानुपातिक, समावेशी, समानता, सुशासन, संघ, संघीय, संविधान, संशोधन, सार्वभौमसत्ता, सम्पन्न,

सार्वभौमिकता, स्वाधीनता, स्वाभिमान, स्वतन्त्रता, स्वायत्तता, स्वशासन, स्मरण, सशस्त्र, संघर्ष, सम्मान, सामन्ती, सामाजिक, सांस्कृतिक, सहिष्णुता, समानता, समृद्धि, सुनिश्चित, सहभागितामूलक, सिद्धान्त, समतामूलक, समाज, संकल्प, समाजवाद, सक्षम, समृद्ध, सभा, समान, सूत्र, समष्टि, सम्पन्न, सीमाना, सुरक्षा समुन्नति, सहित, सम्मानार्थ, समाप्ति, सहयोग, संगठन, सदस्य, सम्मानपूर्वक, संस्था, स्थापना, सम्प्रदाय, सु-सम्बन्ध, सार्वजनिक, साम्प्रदायिक, स्थिति, सीमान्तीकृत, सशक्तीकरण, स्पष्टीकरण, सम्पत्ति, सांस्कृतिक, सजाय, सञ्चालन, शिष्टाचार, सञ्चार, समाचार, सम्पादकीय, सामग्री, सूचना, प्रसारण, समय, सनातन, संस्कृति, संरक्षण, साक्षी, सो, सिर्जना, संस्कार, सेवा, समुचित, सन्तुलन, सहभागी, सभ्यता, सम्पदा, संवर्धन, सम्प्रभुता, स्वामित्व, स्वास्थ्य, सूर्य, सकारात्मक, स्याहार, सेवा, समुदाय, सांकेतिक, सर्वांगीण, सेना, समूह, स्रोत, संशोधित, स्थानीय, सर्वोपरि, समानता, सभ्य, सामञ्जस्य, सुदृढ, सद्भाव, सशस्त्र, संभौता, साहित्य, सङ्गीत, सहअस्तित्व, सर्वसाधारण, सहज, समन्याय, सुनिश्चित, सहमति, समर्पित, सेवामूलक, स्वास्थ्यकर्मी, संख्या, सुलभ, स्वदेश, सुसम्बन्ध, सर्वोत्तम, सहभागिता, स्थापना, सामान्य, समाधान, समुन्नत, संसद, स्वायत्त, समाप्त, सम्मिलन, सामरिक, स्वीकृति, सूचकाङ्क, संवत्, सुविधा, सप्तरी, संविधान, सम्पन्न, स्वतन्त्रता, सार्वभौम, सद्भाव, समान, स्पष्टीकरण, सनातन, स्थायी, सन्तान, सन्देश, सन्तुलन, समानीकरण, समष्टिगत, समपूरक, सन्तुलित, स्वाधीनता, स्वास्थ्य, सम्पत्ति, सम्पादन, सम्भाव्यता, संरक्षण, स्वच्छता, साधन, स्रोत, समुचित, समन्वयात्मक, सरल, सम्मति, सर्वोच्च, संवैधानिक, संयुक्त, सहमत, संकट, संकटकालीन, सरोकार, सुपरिवेक्षण, समर्थ, सम्बन्धित, समर्थन, सहायक, समन्वय, सहकारिता, संग्रह, समष्टिगत, समीक्षा, स्वच्छ, समुदाय, नामकरण, स्याहार, सदर, साधक, स्वर, स्थानीय, सुदृढ, साधक, सन्धि, सुपथ, स्वावलम्बी, संलग्न, सर्वसुलभ, संयुक्त, स्वतः, संशोधित, सदन, समर्थन स्वीकृत, सार्वजनिक, सारभूत, स्थापिकीय, सुधार, सांकेतिक, समुदाय, सामञ्जस्य, सद्भाव, सैनिक, साधन, सन्तुलन, समन्वयात्मक, सर्वसाधारण, सहज, सुनिश्चित, सुरक्षा, सुलभ, सर्वोत्तम, स्वीकृति, संलग्न, सर्वसुलभ, समाधान, संयुक्त, समुन्नत, संसद, समतामूलक, सम्भाव्यता, सम्पादन, स्पष्टीकरण, संन्यासी, सदन, सभामुख, सन्देश, सम्बन्धित, स्तर, स्नातक, सरोकार, सारभूत, सदर, समाप्ति, संयोजकत्व, समन्वय, सुधार, सरह, सम्मिलन, सामरिक, स्मारक, सुदृढ, संशोधन, स्वच्छता, संयुक्त, सभामुख, संवैधानिक, सर्वोपरि, संवर्धन (१६६) हिमाल, हित, हिंसात्मक, हस्तान्तरण, हस्तक्षेप, हनन (६) ।

उपर्युक्त शब्दसूचीलाई हेर्दा नेपालको संविधान २०७२ मा १६३९ प्रयोग भएको पाइयो । यी शब्दमध्ये तत्सम शब्द १०८२ पाइए । यी शब्दको सुरुका वर्णलाई हेर्दा सबभन्दा बढी प वर्णबाट सुरुभएका (१७७) पाइए । त्यसपछि क्रमशः स वर्ण (१६७) व वर्ण (११६), न वर्ण (७८) भएका शब्द पाइए । यसमा ऊ, ऋ, ठ वर्ण भएका न्यून (१/१शब्द) मात्र पाइए । तत्सम शब्द जम्मा शब्द सङ्ख्या (१६३९) को ६६.०१ प्रतिशत रहेकाले अन्य शब्दका तुलनामा तत्सम शब्दको प्रयोग उच्च रहेको देखिन्छ । यसैगरी तत्सम शब्दको अक्षरसंरचनालाई हेर्दा एक अक्षर (वन, क्रम आदि) देखि सात अक्षरसम्म भएका (जनसहभागिता, बन्दीप्रत्यक्षीकरण, सहभागितामूलक आदि) शब्द समावेश भएका पाइए ।

नेपालको संविधानमा प्रयुक्त तद्भव शब्दहरूको स्थिति

नेपालको संविधानमा प्रयुक्त तद्भव शब्दहरूको स्थिति देहायबमोजिम रहेको देखिन्छ :

अठार, अपनाउने अलिकति, अधि, अर्को, अनुसार, अपनाउन, असुली, असोज, अरू (१०) । आफू, आफ्नो, आठ, आएका, आमा, आकार, आफन्त, आँच, आवतजावत (९) । ओसारपसार, ओहदा, ओखलढुङ्गा (३) । इलाम (१) । उठाउन, उमेदवार, उनसाठी, उठाई, ठाइन, उदयपुर, उधारो, उल्टी (८) । एउटा, एक्काइस (२) । कारखाना, कामकाज, कुरा, किनारा, कसैलाई, किसान, कुनै, किसिम कारोबार, कामदार, कालाबजारी, कमैया, कम्हलरी, कुन, कम्ती, किटानी, कसैले, कम, काटिएका, काभ्रे पलान्चोक (२०) । खुल्न, खोल्ने, खेलकुद, खेलाडी, खुलाउन, खुलाई, खुला, खोटाड, खटाइने, खिची, खिच्ने, खुपे (१२) । गरी, गर्दछौं, गाढा, गाई, गरिएको, गरेकी, गरेको, गाली, गरिने, गराउन, गोला, गाभिने, गर्नेछ, गर्दै, गरेका, गर्न, गरे, गुठी, गाउँ (१९) । घर, घुसाने, घटाउन, घटाई, घडेरी, घाटा, घाइते (७) । चलिआएका, चाह, चौबिस, चार, चलिरहेको, चलाइ, चाँडो, चासो, चुच्चा, चौड्याउने, चितवन, चक्लाबन्दी, चौथाइ, चलाइने, चालिस, चिनो, चलाए (१७) । छलफल, छ, छनोट, छुवाछुत, छैन,छापा, छाप्न, छान्ने, छिटो, छरितो, छपन्न, छानवीन, छुट्याइएको, छुट, छुने (१५) । जासुसी, जुनसुकै, जोडिएको, जानकारी, जीउ, जानीजानी, जम्मा, जेठ, जाँच्ने, जाँचबुझ, जोडी, जोड्ने (१२) । भिक्न, भिकाई, भापा (३) । टुंगो (१) । ठहर, ठेगान, ठान्ने, ठाउँ, ठान्न (५) । डोरी, डाँफे (२) । ढुवानी (१) तथा,तल्लो, तोक्ने, तर, त्यस्तो, तिहाइ, तीस, त्यस, तुरुन्त, त्रिसट्ठी, तीन, तेह्रथुम, त्यस्तो, तापनि, तराई (१५) । थारू, थुनामा, थप, थप्ने, थुंगा (५) । दर्ता, दिने, दिएको, दुई, देखिने, दलित, दोहोरो, दोहोर्याउने, दिनभित्र, दिँदा, दोब्बर, दायौँतिर, दुवैतर्फ, दसी, दुवै (१५) । धादिङ, धितो (२) । नीलो, नसकिने, नाबालक, नीलो नभएको, नपरेसम्म, नदिई, निकाला, नसम्हाल्न, नेपाल, नहुने, नुवाकोट, नरहेको, नातेदार (१४) । पहिलो, पटकपटक, पर्छ, परेको, पाउन, पर्छि, पाउने, पनि, पुर्याउन, पिछडा, पिछडिएको, पक्राउ, परेका, पर्नेछ, पुर्‍याए, पहुँच, पछाडि, परेका, पारिएका, पैतिस, पचहत्तर, पैसट्ठी, पाएका, पच्चिस, पन्ध्र, पठाइनेछ, पठाउन, परी, पाउने, पटक, पट्टी, पाँचथर, पैतालिस, पूरा, पाँच, पचास, प्वाल, प्यारो, पार्ने (३९) । फूल, फेला, फैलाउने, फिर्ता, फूल, फैलिएका (६) ।

बनाइने, बसोवास, बाँच्न, बाबु, बाजे, बज्यै, बेपत्ता, बाभिने, बाभिएको, बोल्ने, बढी, बाह्र, बनाउने, बेइज्यती, बनाउन, बेचबिखन,बहिरा, बोलाइ, बेपत्ता, बनाई, बढाई, बसोवास, बडापत्र, बाँडफाँड, बाँकी, बैठक, बराबर, बाँधिनेछ, बढी, बीस, बसेका, बाभिएको, बहुवा, बुझ्ने, बकपत्र, बदनियत, बहत्तर, बताइएका, बारा, बस्ती, बाँधा, बीउबिजन, बाहिर, बन्दी, बाटो, विक्री, बोलेको, बासिन्दा (४८) । भई, भए, भन्नाले, भुईँ, भएका, भएको, भेला, भरपर्दा, भरपर्दो, भने, भइसकेको, भित्र, भर्ना, भैरहेको, भेटघाट (१५) । मधेसी, माथिल्लो, मानिने, माटो, मिलाउने, महिना, मेलमिलाप, मानी, मौजुदा, माथि, माला, मोरङ, महोत्तरी, मर्का, मकवानपुर, मौका (१६) । यो, यस, यस्तै, त्यस्तो (४) । रहनेछ, राखी, रही, रहेको, रहेका, रोजेको, रामेछाप, रसुवा, राख्न, रगत, रौतहट (११) । लट्ठी, लालीगुराँस, लेखिने, लगाउने, लेखिएको, लिन, लिँदा, लगानी, लागू, लगातार, लाग्यो, लिए, लगाई (१३) । व्यहोर्नुपर्ने (१) । सल्लाह, सबै, सम्झनु, सक्ने, सुनुवाइ, सक्नेछ, सम्बन्धी, सोह्र, सट्टा, सिँचाइ, सेता, सिप, सयौं, सुकुम्वासी, सम्झौता, साभा, सय, सोही, सक्नेछ, सोधभर्ना, सुन्ने, सार्न, सुनुवाइ, सरुवा, सम्हाल्नु, साठी, सात, सोलुखुम्बु, सुनसरी, सर्लाही, संखुवासभा, सिन्धुली, सिन्धुपाल्चोक, सुरु (३४) । हामी, हो, हुनेछ, हुँदाका, हुनेछन्, हुँदा, हातहतियार, हुने, हेर्ने, हेरचाह, हरवा, हलिया (१२) ।

नेपालको संविधान २०७२ मा रहेका तद्भव शब्दहरूलाई हेर्दा जम्मा १६३९ शब्दमध्ये ३९५ तद्भव शब्द पाइए । यीमध्ये क्रमशः ब वाट सुरु भएका सबभन्दा बढी ४८, पाइए भने ट, ठ, ड, व वाट सुरु भएका शब्द न्यून १/१ मात्र पाइए । यसरी हेर्दा नेपालको संविधान २०७२ मा जम्मा शब्दको २४.१० प्रतिशत पाइएकाले तत्सम शब्दका तुलनामा निकै न्यून मात्रामा तद्भव शब्दको उपस्थिति रहेको तथ्य फेला पर्दछ । साथै तद्भव शब्दको अक्षर संरचनालाई हेर्दा एक अक्षर (प्वाल, पाँच आदि) देखि (अपनाउन, काभ्रेपलान्चोक आदि) पाँच अक्षरसम्मका शब्दहरू रहेका पाइए ।

नेपालको संविधानमा प्रयुक्त आगन्तुक शब्दहरूको स्थिति

नेपालको संविधानमा प्रयुक्त आगन्तुक शब्दहरूको स्थिति देहायबमोजिम रहेको देखिन्छ :

असर, अदालत, असल, असुलउपर, असुली, अड्डा, अनलाइन, अख्तियारी (८) आम्दानी, आम (२) इजलास, इन्जिनियरिङ, इकाइ, इमानदारीपूर्वक (४) । उमेर, उजुरी (२) । एसियाली, एजेन्सी, एफएम (३) । ऐन (१) । औसत (१) । कायम, कानुनी, कसूरदार, कारबाही, करिडोर, कैद, कायममुकायम, किनारा, कम्पनी, कब्जा, करार, कार्वन, कच्चा, कसूर, क्वारेन्टाइन, क्यासिनो (१६) । खारेज, खलल, खरिद, खास, खराब, खर्च, खानतलासी (७) । गैरकानुनी, गरिबी, गलत (३) । चरवा, चालू, चार्टरएकाउन्टेन्सी (३) । जफत, जनावर, जारी, जोखिम, जमीन, जग्गा, जिम्मा, जमानत, जायजेथ, जरिवाना (१०) । झन्डा (१) । टेलिभिजन, ट्रेडयुनियन, ट्रेडमार्क (५) । डिजिटल, डिजाइन (२) । तर्जुमा, तरिका, ताप्लेजुड, तोक्नु, तोक, तह (६) । देहाय, दाखिल, दस्तुर, दायर, देवानी (५) । नजर, निज, नजिक, नसिहत (४) । पेसा, पेस, पेस्की, पैरवी, पेटेन्ट, प्रेस, पत्ता (७) । फरक, फौजदारी, फैसला, फिर्ता, फ्रिक्वेन्सी (५) । बालिग, बमोजिम, बखत, बापत, बाहेक, बन्द, ब्रेल, बजार, बन्देज, बहस, बिदा, बदर, बारयसोसियसन, बोर्ड, बयान, बीमा, बहाल, बदनियत (१८) । मनासिब, मुस्लिम, म्याद, मुद्दा, मजदुर, मामिला, मार्फत, मौका, माफ, मातहत, महसुल, मुल्लवी, मनाड, मुस्ताड (१४) । रोजगार, रेडियो, रोयल्टी, रोह, रकम, राय, रुकुम, रेल, रजिस्ट्रेसन, राहत, राजीनामा (११) । लमजुड, लगायत (२) । वडा, वकालत (२) । सहिद, सरकारी, सिफरिस, साबिक, सजाय, सहरी, सर्त, ससर्त सिलसिला, सफाइ, सरोकार, सेयर, सबुत, साल, सिरहा, सिम्रिक, सौदाबाजी (१६) । हद, हक, होमियोप्याथिक, हजार, हिरासत, हिस्सा (६) ।

नेपालको संविधान २०७२ मा रहेका आगन्तुक शब्दको प्रयोगलाई अवलोकन गर्दा जम्मा १६३९ शब्दमध्ये १६२ आगन्तुक शब्द पाइए । यीमध्येक वर्णवाट सुरु भएका १६, स वाट सुरु भएका १६, म वाट सुरु भएका १४, ब वाट सुरु भएका १४ शब्द पाइए भने ऐ, औ, भ वाट सुरु भएका शब्द न्यून (१/१ मात्र) पाइए । आगन्तुक शब्दको अक्षर संरचनालाई हेर्दा एक अक्षर (आम, रेल, हक, हद आदि) देखि ६ अक्षरसम्म (इमानदारीपूर्वक, बारयसोसियसन आदि) ६ अक्षरसम्मका शब्द पाइए । आगन्तुक शब्द जम्मा १६३९को (९.८८ प्रतिशत) रहेको पाइयो । यी तत्सम र तद्भव शब्दका तुलनामा निकै न्यून रहेको देखियो । नेपालको संविधान नेपालीहरूका लागि सम्प्रेष्य हुनु आवश्यक छ । तत्सम र विदेशी आगन्तुक शब्दको व्यापक प्रयोगले यसको सम्प्रेष्यता कमजोर हुने देखिन्छ । कानूनको अध्ययन गरेका शिक्षित वर्गका लागि समेत जटिल हुने गरी शब्द चयन गरिनु र यो विभिन्न अर्थ लगाइ नसकिने अनन्त भाषिक जालोका रूपमा रहन गएमा यसको उपयोगिता ह्रास हुने कुरामा दुई मत हुन सक्दैन । कानुनी

दस्तावेजहरूमा रहनुपर्ने भाषाका सम्बन्धमा नेपालको संविधामा सचेतता अपनाइएको देखिन्छ । नेपाली भाषामा कतिपय कानुनी प्राविधिक शब्दहरूको विकास नभएकाले अरबी स्रोतको प्रयोग पाइन्छ ।

निष्कर्ष

नेपालको संविधान २०७२ मा रहेका जम्मा १६३९ शब्दमध्ये १०८२ तत्सम शब्दहरू पाइए । यसमा रहेका तत्सम शब्दहरू जम्मा शब्द सङ्ख्याको ६६.०१ प्रतिशत देखिएकाले अन्य शब्दका तुलनामा तत्सम शब्दको छनोट उच्च मात्रामा रहेको पाइयो । यसैगरी तद्भव शब्दहरू ३९५ वटा तथा जम्मा शब्द सङ्ख्याको २४.१० प्रतिशत पाइएकाले तत्सम शब्दका तुलनामा यी निकै न्यून देखिए । आगन्तुक शब्द १६२ वटा पाइए । यी जम्मा शब्द सङ्ख्याको ९.८८ प्रतिशत देखिए । तत्सम र तद्भव शब्दभन्दा पनि आगन्तुक शब्द अभै न्यून रहेको पाइयो । यसमा नेपालका अन्य भाषाबाट ग्रहण गरिएका शब्द नगन्य पाइए । आगन्तुकमध्ये अरबी स्रोतबाट आएका शब्द उल्लेख्य रहेका र अङ्ग्रेजी शब्दहरू सीमित रहेका पाइए । नेपालको संविधान नेपाली भाषामा लेखिएको भए पनि यसमा तद्भव शब्दको बाहुल्य पाइएन । मौलिक स्रोतमध्ये तत्सम शब्दलाई नै प्राथमिकता दिइएकाले नेपाली भाषाको मूल कानूनमा संस्कृत शब्दको महत्त्व उल्लेख्य रहेको देखियो । नेपाली भाषा नेपालको सरकारी कामकाजको भाषा भएकाले संविधान लगायत नेपालका हरेक नियम कानूनहरू सबैले बुझ्न सक्ने गरी नेपाली भाषामा लेखिनु पर्दछ । यिनमा सरल सम्प्रेष्य र शुद्ध भाषिक प्रयोग हुनु आवश्यक देखिन्छ । यसमा कानुनी भाषा सरल, स्पष्ट, उखानटुक्का रहित र अनर्थ नलाग्ने प्रकृतिको हुनुपर्ने मान्यताको अनुसरण गरिएको देखिन्छ । अप्रचलित र आफूखुसी शब्दको रचना गर्न नहुने, यसमा कुनै धर्म, जातजाति, वर्ग, लिङ्ग तथा उमेर समूहलाई होच्याउने, अपमान गर्ने खालका शब्दहरू, अमर्यादित, अशिल, हेपाहा, गालीबोधक शब्दको प्रयोग गर्न नहुनेजस्ता मान्यतालाई पनि अनुसरण गरिएको देखिन्छ । साथै समाजमा फुट पैदा गर्ने, आक्रामक भाव झल्कने खालका शब्दहरूको प्रयोग नहोस् भन्ने कुरामा पनि सचेतता अपनाइएको देखिन्छ ।

सन्दर्भसूची

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नेवारी र नेपाली भाषाका शब्दहरूको तुलनात्मक अध्ययन

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लेखसार

नेपाल बहुलवादमा आधारित समाज भएको र बहुभाषिक नेपालमा मुलतः पाँच भाषा परिवारका भाषा बोलिने गरेको प्रमाण भेटिन्छ। यी भाषा परिवारमध्ये भारोपेली भाषा परिवारअन्तर्गत पर्ने नेपाली भाषा र भोटबर्मेली भाषा परिवारअन्तर्गत पर्ने नेवारी (नेपाल) भाषाका दैनिक प्रयोजनमा आइरहने ४२४ ओटा शब्दहरूका विचमा के कति समानता र के कति भिन्नता रहेका छन् भनी यी शब्दहरूको विच व्यतिरेकी अध्ययनका लागि धनकुटा नगरपालिका अन्तर्गतका ४, ५, ६ र ७ नम्बर वडामा बोलिने नेवारी भाषालाई आधार मानेर अध्ययन गरिएको छ। नेवारी भाषा र नेपाली भाषाका शब्दहरू विच तुलना गर्नु, नेवारी भाषाका शब्दहरूको सङ्कलन गर्नु र नेवारी भाषाका विशेषताहरू पहिल्याउने उद्देश्यका साथ यो अध्ययन गरिएको थियो। अनुसन्धान नतिजाबाट नमुना छनौट गरिएका शब्दहरूमा एकरूपता पाइयो भने लवजमा भने केही भिन्नता पाइयो। नेवारी (नेपाल) भाषाको विकास र विस्तारका लागि नेवारी भाषाको प्रयोग व्यवहारको सन्दर्भलाई नियाल्दा दिनानुदिन घट्दो क्रम देखियो। यसर्थ नेवारी भाषाको संरक्षण र संवर्धनका लागि नीतिगत तहमा नेवारी भाषाका बारेमा अध्ययन अनुसन्धान तिब्र रूपमा हुनुपर्ने, नेवारी भाषाका वक्ताहरूले भाषाको महत्त्वलाई ध्यानमा राखी आफ्नो बालबालिकाहरूलाई पनि नेवारी भाषा सिकाउने कार्य सुभाबको रूपमा राख्न सकिन्छ। नेपालको संविधान २०७२ मा व्यवस्था भएको मौलिक हकअन्तर्गत मातृभाषामा शिक्षा आर्जन गर्न पाउने हकलाई प्रभावकारी रूपमा कार्यान्वयनमा ल्याउन सक्दा नेवारी भाषालाई लोपोन्मुख हुनबाट बचाउन सक्ने देखिन्छ।

शब्दकुञ्जी : व्यतिरेकी, रञ्जना लिपि, नेपाल भाषा, बहुभाषिकता, राष्ट्रभाषा

परिचय

नेपाल चार जात छत्तिस वर्णको साभा फूलवारी हो। यहाँ विविध जातजाति, धर्म, संस्कृति र भाषाभाषिकाका मानिसहरू बसोबास गर्दछन्। यही बहुभाषिक, बहुसंस्कृति, बहुजातीय, प्राकृतिक र सांस्कृतिक विविधतामा एकता नै नेपाली र नेपालको पहिचान र गौरवको विषय हो। संसारमा बोलिने

चौध भाषा परिवारमध्ये भारोपेली, भोटबर्मेली, आग्नेली, द्रविड र एकल गरी पाँच भाषा परिवारका वक्ताहरू यहाँ बसोबास गर्दछन् (ढकाल, २०७०, पृ. ३२१) । २०६८ सालको जनगणना अनुसार भोटबर्मेली भाषापरिवार अन्तर्गत नै ६८ भाषाहरू बोलिन्छन् जसमध्ये नेवारी भाषा पनि एक हो (जनगणना, २०६८) ।

नेवा: भन्ने शब्दले नेपालको एउटा मूलबासी भाषिक समुदायलाई जनाउँदछ । नेवार समुदायको मूल थलो काठमाडौँ उपत्यका हो । काठमाडौँ उपत्यकाबाहेक अन्य जिल्लाका प्रायः सहरी क्षेत्रमा यस जातिको बसोबास रहेको पाइन्छ । यसरी विभिन्न स्थानमा छरिएर रहेका नेवार समुदायले बोल्ने भाषा नै नेवारी भाषा हो । नेवा: भाषा भनेको नेवारी साहित्यको ऐतिहासिक, सामाजिक, सांस्कृतिक एवम् साहित्यिक उपनाम हो । भोटबर्मेली भाषापरिवारअन्तर्गत पर्ने यो भाषा किराँती भाषामा विभिन्न भाषाहरू मिसिएर विकसित भई मल्लकालदेखि साहित्यिक रूपमा फल्दै फुल्दै आएको छ ।

नेवारी भाषा धेरै लिपिहरूमा लेखिन्छ । तीमध्ये प्रमुख लिपिहरू रञ्जना, प्रचलित, ब्राह्मी, भुजिमोल हुन् । यी सबै लिपिहरू देब्रेबाट दाँयातर्फ लेखिन्छ, तर कुटिला लिपि भने माथिबाट तल लेखिन्छन् । यी सबै लिपिमा स्वरमाला र व्यञ्जनमाला गरी दुई प्रकारका अक्षरहरू हुन्छन् । नेवारी भाषाका लिपिहरू निम्नानुसार रहेका छन् : ब्राह्मी लिपि, कुटिला लिपि, गुप्त लिपि, प्रचलित लिपि, रञ्जना लिपि, भुजिमोल लिपि, लिटुमोल लिपि, कुबेमोललिपि, पाचुमोल लिपि, हिंमोल लिपि, गोलमोल लिपि, कुमोल लिपिहरू रहेका छन् । उपर्युक्त लिपिहरू भए पनि यो भाषा देवनागरी लिपिमा समेत लेखिने एउटा मात्र भोटबर्मेली भाषा परिवारभित्रको भाषा हो ।

नेवारी भाषाका विभिन्न भाषिकाहरू रहेका छन् जस्तै: दोलखा भाषिका, चित्लाङ भाषिका, ललितपुर भाषिका, काठमाडौँ भाषिका, कीर्तिपुर भाषिका, भक्तपुर भाषिका, प्याङ्गा भाषिका, पहरी भाषिका, काभ्रे सात गाँउका भाषिका (नाला, बनेपा, साँगा, श्री सन्दापुर, चौकोट, पनौती र खोपासी) धुलिखेल भाषिका आदि । यसरी धेरै भाषिका भए तापनि यिनीहरू बिचमा खासै धेरै भिन्नता भने छैन ।

वि.सं २०५८ को जनगणना अनुसार नेवारी भाषा बोल्नेको सङ्ख्या आठ लाख पच्चिस हजार चार सय अठाउन्न रहेको छ । त्यस्तै २०६८ को जनगणना अनुसार नेपालको कुल जनसङ्ख्याको ४४.६४ प्रतिशत जनसङ्ख्याले मात्र मातृभाषाको रूपमा नेपाली भाषा बोल्दछन् भने अरू नेपालीले आफ्नै मातृभाषा बोल्दछन् । भाषा आयोगका अनुसार नेपालमा १२३ ओटा भाषा बोलिन्छन् ।

नेवारी भाषा नेपाल उपत्यकाको मौलिक भाषा हो । यस भाषाको उत्पत्ति काठमाडौँ उपत्यकामा नै भएको कुरामा विद्वान्हरूको सहमति रहेको छ । काठमाडौँ उपत्यकामा किराँत शासनको समयमा यस भाषामा किराँती भाषाको प्रभाव पर्न गयो । तिब्बतसँगको शताब्दिऔँदेखि रहेको व्यापारले गर्दा यस भाषामा तिब्बती भाषाको पनि उल्लेख्य प्रभाव देखिन्छ । लिच्छवी काल र मल्ल कालमा बढ्दो संस्कृतको तथा शाहकालमा खस (नेपाली) भाषाको प्रभाव यस भाषामा देखिन्छ ।

शाहकाल तथा राणा कालमा राष्ट्रद्वारा नेपाली भाषालाई दिइएको प्रथमिकता तथा पञ्चायती व्यवस्थाको एक भाषा नीतिले यस भाषाको विकासक्रममा केही सुस्तायो । प्रजातन्त्र पुनर्स्थापनापश्चात्

नेपाली सञ्चारका माध्यममा निजी क्षेत्रको संलग्नताले यस भाषाको विकासमा सघाउ पुऱ्याएको देखिन्छ ।

२०७२ सालको नेपालको संविधानको धारा ६ मा राष्ट्रभाषाअन्तर्गत नेपालमा बोलिने सबै मातृभाषाहरू राष्ट्र भाषा हुन् भनी उल्लेख गरिएको छ । समाजमा मिश्रित जातजातिहरूको बसोबास र अन्य भाषा तथा संस्कृतिको प्रभावले गर्दा कतिपय अवस्थामा रहरले र कतिपय अवस्थामा बाध्यताले पनि सबै नेवार जातिले नेवारी भाषाको प्रयोग गरिरहेको अवस्था भने छैन ।

भाषावैज्ञानिक सन्दर्भमा भाषा भन्नाले मानवीय उच्चारण अवयवद्वारा उच्चरित यादृच्छिक ध्वनि प्रतीकको व्यवस्थालाई बुझाउँदछ । भाषा मानवीय चिन्तन, मनन र विचार अभिव्यक्तिको साधन हो । समाजमा रहेको प्रत्येक व्यक्तिले भाषाकै माध्यमबाट आपसमा सम्पर्क स्थापित गर्दछ । २०७२ सालको नेपालको संविधानको धारा ७ अन्तर्गत उपधारा (१) मा देवनागरी लिपिमा लेखिने नेपाली भाषा नेपालको सरकारी कामकाजको भाषा हुनेछ । त्यस्तै उपधारा (२) मा नेपाली भाषाका अतिरिक्त प्रदेशले आफ्नो प्रदेशभित्र बहुसङ्ख्यक जनताले बोल्ने एक वा एकभन्दा बढी अन्य राष्ट्र भाषालाई प्रदेश कानूनबमोजिम प्रदेशको सरकारी कामकाजको भाषा र अन्य मातृभाषालाई समान रूपमा उल्लेख र महत्त्व दिइएको हुनाले नेपाली भाषाका साथसाथै नेपालमा बोलिने अन्य सबै भाषाहरूको जगेर्ना गर्नु नितान्त आवश्यक देखिन्छ । सबै भाषाभाषीको विकासबाट नै सम्पूर्ण नेपालीहरूलाई अझ सुदृढ किसिमले राष्ट्रिय एकताको मूलधारमा समाहित गराउन सकिन्छ । नेपालमा वर्तमान सन्दर्भमा नेपाली भाषालाई नै सरकारी कामकाजको भाषा र फरक समुदायविचको सम्पर्कको माध्यम भाषाको रूपमा प्रयोग गरिँदै आएको पाइन्छ ।

देशभित्र बोलिने सबै भाषामा समान भाषिक सञ्चार विकास हुन सक्दैन सञ्चारको आदानप्रदानका लागि नेपाली भाषा जान्नुपर्ने हुन्छ । नेपालको संविधान २०४७, नेपालको अन्तरिम संविधान २०६३ र हालको नेपालको संविधान २०७२ ले प्राथमिक तहसम्म मातृभाषामा शिक्षा दिने भने तापनि विविध कारण त्यसको कार्यान्वयन हुन नसकेको अवस्थामा विद्यालय शिक्षाको प्रारम्भिक चरणबाट नै नेपाली भाषा जान्नुपर्ने हुन्छ । साथै दैनिक व्यवहार सञ्चालन गर्न, विभिन्न पेसा व्यवसाय सञ्चालन गर्न र सरकारी कामकाज सम्पन्न गर्नका लागि पनि नेपाली भाषा जान्ने पर्ने हुन्छ । यसरी शिक्षा, साहित्य, सञ्चार र अन्य वाङ्मयमा व्यापक रूपमा प्रयुक्त देवनागरी लिपिमा लिखित नेपाली भाषा मर्यादित र सुव्यवस्थित हुन पनि उत्तिकै आवश्यक रहन्छ । नेपाली भाषाको सम्पूर्ण क्षेत्रमा रहेको वर्चस्वका कारण र नेपाली भाषा सम्पर्क स्थापित गर्ने माध्यम भाषाका रूपमा स्थापित भएको हुनाले पनि नेवारी भाषी विद्यार्थीले यसको अध्ययन र प्रयोग गर्नुपर्ने हुन्छ । नेवारी भाषा र नेपाली भाषा विषम परिवारका भाषा भएकाले नेवारीभाषी विद्यार्थीले दोस्रो भाषाका रूपमा नेपाली सिक्नुपर्ने हुन्छ । दोस्रो भाषाका रूपमा नेपाली सिक्नुपर्ने भएकाले भाषा सिकाइ अलि कठिन र जटिल हुने गर्दछ । त्यस कारण दुवै भाषाको शब्दहरू थाहा भएमा नेपाली भाषा सिक्न र सिकाउन सजिलो मात्र नभई प्रभावकारी शिक्षण पनि हुन जान्छ ।

२०६८ को जनगणनाले नेपालमा १२५ जातिहरू रहेको उल्लेख गरेको छ । जसमा नेवार जातिको जनसङ्ख्या १३,२१,९३३ जना वा ४.९९ प्रतिशत रहेको छ । जनगणना २०६८ का अनुसार नेवार भाषा बोल्ने जनसङ्ख्या ८,४६,५५७ जना वा ३.१९५ प्रतिशत रहेका छन् । धनकुटा जिल्लाका क्रमशः वडा नं. १

देखि १० सम्म क्रमशः १९६, ३५, ७५, ३४५, ५६९, ५०८, ७०७, ६१, २५६, १९० जना गरी जम्मा २९४२ जना वा ८.६१ प्रतिशत यो धनकुटा जिल्लामा रहेका जनसङ्ख्यामध्ये क्षेत्री, राई, आठपहरियापछि चौथो स्थानमा नेवार पर्दछ (बजेट नीति तथा कार्यक्रम २०७७, धनकुटा नगर कार्यपालिकाको कार्यालय)।

यो अनुसन्धान नेवारी भाषाका शब्द तहसँग सम्बन्धित रहेको छ। त्यसैले यसमा नेवारी भाषाका शब्द र नेपाली भाषाका शब्दहरूविच व्यतिरेकी अध्ययन गरिएको छ। स्वतन्त्र रूपमा प्रयोग हुने भाषाको सबैभन्दा सानो अर्थपूर्ण एकाइलाई शब्द भनिन्छ। शब्द रूपभन्दा ठुलो र पदावलीभन्दा सानो हुन्छ। प्रायोगिक भाषाविज्ञानको एउटा शाखा व्यतिरेकी विश्लेषण हो। व्यतिरेकी विश्लेषण भन्नाले दुई वा दुईभन्दा बढी भाषाको व्यवस्था वा उपव्यवस्थाहरूको समानता र भिन्नताहरूको तुलनात्मक अध्ययनलाई जनाउँदछ।

पूर्वकार्यको समीक्षा

विगत १०-२० वर्षमा नेवारी भाषालाई प्रस्फुटन गराउन थुप्रै अनुसन्धानकर्ताहरूले केही व्यावहारिक अनुसन्धान गरेका प्रमाणहरू भेटिन्छन्। श्रेष्ठ (२०६०), द्वारा तयार पारिएको कक्षा छ मा अध्ययनरत नेवारी मातृभाषी विद्यार्थीहरूले नेपाली भाषाको उच्चारणमा गर्ने त्रुटिहरूको विश्लेषण नामक शीर्षकमा अनुसन्धान गरिएको छ। उक्त अध्ययनको मुख्य उद्देश्य कक्षा छमा अध्ययनरत नेवारी मातृभाषी विद्यार्थीहरूले नेपाली भाषाको उच्चारण गर्दा गर्ने त्रुटिको पहिचान गरी त्यसको विश्लेषण गर्नु रहेको छ। यस अध्ययनमा प्राथमिक र गौण स्रोतबाट तथ्याङ्क सङ्कलन गरिएको छ। उक्त अध्ययनको सारभुत निष्कर्षमा नेवारी मातृभाषी विद्यार्थीहरूले नेपालीका प्राणत्व र घोषत्व उच्चारणमा त्रुटि गर्ने गरेको पाइन्छ, जसअन्तर्गत प्राणत्वतर्फ ७७.५ प्रतिशत र घोषत्वतर्फ ३१.२५ प्रतिशतले त्रुटि गरेको पाइएको छ। नेवारी मातृभाषी विद्यार्थीहरूले अनुनासिकता, रेफ तथा य,ण,न क्ष/छ आदि क्षेत्रमा अत्यधिक त्रुटि गरेको देखिन्छ। नेवारी मातृभाषी विद्यार्थीहरूले नेपालीको उच्चारणमा 'ट' वर्ग र त वर्गका वर्णहरूको उच्चारणमा सर्वाधिक त्रुटि गरेको पाइएको कुरा उल्लेख गरिएको छ।

श्रेष्ठ (२०५९), द्वारा तयार पारिएको दोलखाको नेवारी र नेपाली भाषाका वाक्यरचनाको व्यतिरेकी अध्ययन शीर्षकको मुख्य उद्देश्य दोलखाको नेवारी र नेपाली भाषाका वाक्यरचनाको व्यतिरेकी अध्ययन गर्ने र दोलखाली नेवारी र नेपाली भाषाका वाक्यरचनाका विशेषताहरू पहिल्याउने रहेको छ। यस अध्ययनको निष्कर्षमा वाक्य संरचनामा दोलखाको नेवारी र नेपाली दुवै भाषाका वाक्य संरचनामा कर्ता -क्रिया, कर्ता, कर्म, क्रिया जस्ता पदक्रम भएको पाइन्छ। लिङ्गलाई आधार मानी नेवारी र नेपालीका वाक्यरचनाको व्यतिरेकी अध्ययन गर्दा नेवारीका भविष्यत् कालिक वाक्यका क्रियापदलाई लिङ्गले प्रभावित तुल्याएको पाइन्छ। वचनका आधारमा नेवारी र नेपाली भाषाको वाक्यरचनाको व्यतिरेकी अध्ययन गर्दा नेवारीको वाक्यमा कर्तामा 'पेन' र पेसिन जस्ता प्रत्ययलाई बहुवचन बनाएको पाइन्छ। कालका आधारमा नेवारी र नेपालीका वाक्यरचनाको व्यतिरेकी अध्ययन गर्दा नेवारीका भुतकालको वाक्यरचनाको धातुमा 'औ' वा 'अन' प्रत्यय लाग्ने गरेको पाइन्छ।

महर्जन (२०५४) द्वारा तयार पारिएको नेवारी र नेपाली भाषाका वाक्य - सङ्गतिको व्यतिरेकी

अध्ययन शीर्षकको प्रमुख उद्देश्य नेवारी र नेपाली भाषाका वाक्य गठनको व्यतिरेकी अध्ययन गर्नु, नेवारी भाषीले नेपाली भाषाका वाक्य गठनका विशेषताहरू पहिल्याउनु रहेको छ । उक्त शोधको निष्कर्ष भने नेवारी र नेपाली भाषा फरक भाषिक परिवारका भाषा भए तापनि वाक्य संरचनाका दृष्टिले भने कर्ता र क्रियाको रूप समान सङ्गतिमा पूर्ण भिन्नता देखिन्छ । वचनका दृष्टिले नेवारी भाषामा मानवेतर र मानव दुवैमा वाक्यसङ्गति नभएको पाइन्छ । नेवारी र नेपाली भाषाको वाक्य संरचनामा आदरको सङ्गति सबै जसोमा देखिन्छ तर निम्न र मध्यम आदरार्थीमा नेवारी भाषामा छुट्टाछुट्टै पुरुषविच सर्वनाम प्रयोग भएको देखिँदैन । नेपाली भाषामा उक्त आदरवाची पुरुष 'तँ' र तिमी गरी फरक फरक प्रयोग भएको देखिन्छ ।

नेवार (२०६३) द्वारा तयार पारिएको ताप्लेजुङ नेवार भाषा र नेपाली भाषाको वाक्य गठनको व्यतिरेकी अध्ययन शीर्षकको शोधकार्यको मुख्य उद्देश्य नेवार भाषा र नेपाली भाषाको अन्तर पत्ता लगाउनु त्रुटि क्षेत्र पहिल्याउनु र समस्या समाधानका उपायहरू सुभाउनु रहेको छ । यस शोधमा नेवार भाषा र नेपाली भाषामा तृतीय पुरुषका आदरार्थीका तहहरूको व्यतिरेकी अध्ययन गर्दा नेपाली भाषामा आदरार्थीका पाँच तहहरू छन् भने नेवार भाषामा तीन तह मात्र देखिन्छन् । यस शोधमा नेवार भाषामा आदररहित र मध्यम आदरमा एउटै रूपको प्रयोग हुने कुरा बताइएको छ ।

यसरी नेवार भाषाका सन्दर्भमा विभिन्न अध्ययन र अनुसन्धान भए तापनि पूर्वी नेपालको नेवारी भाषामा कम अनुसन्धान भएकाले यस अनुसन्धान कार्यका लागि नेवारी भाषाका वक्ता सङ्ख्या बढी भएका ठाउँहरूलाई उद्देश्यमुखी अनुसन्धानका रूपमा नमुना छनोट गरी यो लेख तयार पारिएको छ । यस अनुसन्धानको प्रमुख उद्देश्य नेवारी भाषाका विशेषताहरू पहिल्याउनु, नेवारी भाषाका शब्दहरूको सङ्कलन गर्नु, नेवारी भाषा र नेपाली शब्दहरूविच तुलना गर्नु रहेको छ ।

अध्ययन विधि

प्राथमिक र द्वितीयक विधिको प्रयोग गरी यो अनुसन्धान तयार गरिएको छ । तथ्याङ्कको सङ्कलन उद्देश्यमुखी छनोट प्रक्रियाद्वारा गरिएको छ । यो शोधकार्य गुणत्मक भएकाले मुलतः तुलनात्मक र वर्णनात्मक विधिको अवलम्बन गरिएको छ । नेवारी र नेपाली भाषाका शब्दहरूको तुलनात्मक अध्ययन शीर्षकको अनुसन्धानका लागि नेवारी र नेपाली भाषाका शब्दहरूलाई नमुना छनोटका रूपमा लिइएको छ । नमुना छनोटका लागि उद्देश्यमुखी छनोट पद्धति अपनाइएको छ । यस अनुसन्धानका लागि नेवारी भाषाका वक्ता सङ्ख्या बढी भएका ठाउँहरूलाई उद्देश्यमुखी अध्ययन स्थलका रूपमा नमुना छनोट गरिएको छ । धनकुटा नगरपालिका वडा नम्बर ४, ५, ६, र ७ लाई उद्देश्यमुखी अध्ययनस्थलको रूपमा नमुना छनोट गरिएको छ । त्यस स्थलमा भएका नेवारी भाषी वक्ताहरूले बोल्ने नेवारी भाषालाई आधार मानी शब्दहरूको सङ्कलन गरिएको छ । ती शब्दहरूलाई नेवारी भाषासम्बन्धी विज्ञहरू, शिक्षकहरू, अग्रजहरूबाट सङ्कलित शब्दहरूको सत्यापन गरिएको छ । ती वडाहरूमा गरिएको अनुसन्धानबाट नेवारी भाषामा शरीरका अङ्गहरू जनाउने शब्दहरू, घरेलु सामान जनाउने शब्दहरू, फलफुल जनाउने शब्दहरू, नातासम्बन्ध जनाउने शब्दहरू, सातबार जनाउने शब्दहरू, बाह्र महिना जनाउने शब्दहरू, रङ जनाउने शब्दहरू, किराफट्याङ्ग्रा जनाउने शब्दहरू, घरपालुवा जनावर जनाउने शब्दहरू, अङ्क जनाउने शब्दहरू, जङ्गली जनावर जनाउने शब्दहरू, भेषभुषा/लत्ताकपडा जनाउने शब्दहरू, सर्वनाम जनाउने

आफ्नै शब्दहरू, अन्नवाली/गेडागुडी जनाउने शब्दहरू, खाद्यपदार्थ/खानेकुरा जनाउने शब्दहरू, सागपात र तरकारी जनाउने शब्दहरू, समय जनाउने शब्दहरू, स्वाद जनाउने शब्दहरू, विशेषण जनाउने शब्दहरू, प्राकृतिक स्रोत जनाउने शब्दहरू, अभिवादन जनाउने शब्दहरू, आदर जनाउने शब्दहरू, क्रिया जनाउने शब्दहरू, गहना जनाउने शब्दहरू, प्रश्नवाचक जनाउने शब्दहरू, नामयोगी जनाउने शब्दहरू, आज्ञा/निर्देशन जनाउने शब्दहरू रहे तापनि केही शब्दहरूलाई जनाउन देवनागरी लिपिको नेपाली भाषाका शब्दहरू नै प्रयोग गर्ने गरिएको छ ।

सामग्रीको सङ्कलन

प्रस्तुत अनुसन्धानका लागि तथ्याङ्कको सङ्कलन कार्य प्राथमिक र द्वितीयक दुवै स्रोतहरूबाट गरिएको छ । तथ्याङ्क सङ्कलन उद्देश्यमुखी छनैट प्रक्रियाद्वारा गरिएको छ ।

प्राथमिक स्रोत

सामान्यतः अनुसन्धानकर्ताले आफ्नै प्रयासमा पहिलोपटक प्राप्त गरेको सामग्रीलाई प्राथमिक स्रोतीय वा मौलिक सामग्री भनिन्छ (लम्साल, २०६८, पृ. २५) । प्रस्तुत अध्ययन नेवारी भाषासँग सम्बन्धित भएकाले नेवारी जातिहरूको बाहुल्यता भएका ठाउँमा अध्ययन गरिएको छ । नेवारी भाषाको अध्ययन धनकुटा जिल्लाको धनकुटा नगरपालिकाको वडा नं. ४, ५, ६ र ७ का नेवारी जातिसँग आवश्यकताअनुसार व्यक्तिगत र सामुहिक विचार विमर्शका माध्यमबाट सामग्री सङ्कलन गरिएको छ । अनुसन्धानकर्ता स्वयम् नेवारी भाषी वक्ता रहेकी हुनाले नेपाली शब्दलाई नेवारी भाषी अग्रजहरूसँगको सोधखोजद्वारा शब्दहरू सङ्कलन गरिएको छ ।

द्वितीयक स्रोत

आफ्नो संलग्नताबेगर पनि पहिलेदेखि नै उपलब्ध भइराखेका सामग्री नै द्वितीय स्रोतीय सामग्री हुन् । प्रस्तुत अनुसन्धानका लागि पुस्तकालयीय अध्ययन, अनुसन्धानको विषयसँग सम्बन्धित पुर्वकार्यहरू, शोधपत्र, लेख रचनाहरू, पत्रपत्रिका, जातीय संस्थाका रूपमा रहेका विभिन्न अभिलेख, नेवारी भाषाको शब्दकोश जस्ता विभिन्न अभिलेख आदिलाई द्वितीयक स्रोतहरूका रूपमा लिइएको छ । यिनै कृतिहरूद्वारा कतिपय नेवारी भाषाका शब्दहरूलाई सङ्कलन गरी अध्ययन कार्यलाई अगाडि बढाइएको छ ।

यस अध्ययनको तथ्याङ्क सङ्कलनमा क्षेत्रीय अध्ययन पद्धति अवलम्बन गरिएको छ । तथ्याङ्कको व्याख्या विश्लेषण वर्णनात्मक विधिबाट गरिएको छ । निर्धारित सीमाबाट नेपाली भाषाका शब्दहरूलाई नेवारी भाषाका अग्रजलाई अनुवाद गर्न लगाई तथ्याङ्क सङ्कलन गरिएको छ । प्रस्तुत अनुसन्धानले पूर्णता प्राप्त गर्ने भनेको नै यसको विश्लेषणको आधार गुणात्मक भएको मुलतः तुलनात्मक र वर्णनात्मक तरिकाले व्याख्या र विश्लेषण गरिएको छ । छनोट गरी सङ्कलित गरिएका वाक्यहरूलाई तुलना गरी समानता र असमानताहरू केलाइएको छ । नेवारी भाषा र नेपाली भाषा बिचको शब्दको व्यतिरेकी विश्लेषणसँग सम्बन्धित अनुसन्धान भएकाले नेवारी र नेपाली भाषाका शब्दहरू बिचको समानता र असमानताको व्याख्या विश्लेषण गरी नेवारी भाषीले नेपाली भाषा सिक्दा गर्न सक्ने सम्भावित त्रुटिहरू केलाइएको छ ।

नतिजा र छलफल

नतिजा तथा छलफलअन्तर्गत नेवारी भाषाबाट सङ्कलित विभिन्न लिपिका नमुना, शब्दहरू आदिको व्यतिरेकी अध्ययनका साथै तिनको व्याख्या तथा विश्लेषण गरिएको छ ।

नेवारी भाषामा प्रचलित लिपि

नेवारी भाषाका विभिन्न १२ लिपिहरूमध्ये बढी प्रयोगमा रहेका लिपि रञ्जना, प्रचलित, ब्राह्मी, भुजिमोल हुन् भने गोलमोल लिपि, कुटिला लिपि, गुप्त लिपि, लितुमोल लिपि, कुबेमोल लिपि, पाचुमोल लिपि, हिंमोल लिपि, कुमोललगायत अन्य लिपि रहेको यो भाषा देवनागरी लिपिमा समेत लेखिने एउटा मात्र भोटवर्मेली भाषा परिवारभित्रको भाषा हो । यी सबै लिपिहरू बायाँबाट दाँयातर्फ लेखिन्छन् तर कुटिला लिपि भने माथिबाट तलतिर लेखिन्छ ।

यी सबै लिपिमा स्वरमाला र व्यञ्जनमाला गरी दुई प्रकारका अक्षरहरू हुन्छन् । ती लिपिका चित्रहरू निम्नानुसार प्रस्तुत गरिएका छन् :

चित्रसङ्ख्या १

नेवारी भाषामा प्रयोग गरिने विभिन्न लिपिहरू र तिनका नाम



नेवारी तथा नेपाली भाषाका शब्दहरूको व्यतिरेकी अध्ययन

फलफूल, अन्नबाली तथा गेडागुडी, सागपात तथा तरकारी, स्वाद, खाद्यपदार्थ तथा खानेकुरा जनाउने मूलतः नेवारी भाषाका आफ्नै शब्दहरू भए तापनि नेपाली भाषाका कटुस, लिची, बदाम, जुनार, ओखर, फापर, तिल, गाँजर, फर्सी, मूला, पिँडालु, टर्रो, चिनीलाई भने नेवारी भाषामा पनि तिनै नेपाली शब्दहरूको प्रयोग गरिन्छ। त्यसैले यी शब्दहरूमा दुवै भाषाहरूमा समानता रहेको छ।

तालिका सङ्ख्या १

फलफूल, अन्नबाली, गेडागुडी, सागपात, तरकारी जनाउने शब्दहरू

फलफूल जनाउने शब्दहरू			अन्नबाली तथा गेडागुडी जनाउने शब्दहरू			सागपात तथा तरकारी जनाउने शब्दहरू		
क्र.सं	नेवारी भाषा	नेपाली	क्र.सं	नेवारी भाषा	नेपाली	क्र.सं	नेवारी भाषा	नेपाली
१	सन्त्रासी	सुन्तला	१	वाकिजाकी	धान	१	हि	आलु
२	तुसी	काक्रो	२	दुसी	कोदो	२	काँकचा	इस्कस
३	छे हि	तरुल	३	जाकि	चामल	३	ख्वाख	साग
४	बःसी	आरु	४	भुति	सिमी	४	हि	तरुल
५	तु	उखु	५	मुसे	भटमास	५	ला	मासु
६	म्वाय्	केरा	६	छव	गहुँ	६	छेर्मा	साग
७	स्याउपासी	स्याउ	७	तछव	जो	७	सलगं	सलाम
८	नँईक्याः	नरिवल	८	कय्गू	केराउ	८	कुबि	बन्दाकोपी
९	चाकुई	सखरखण्ड	९	तू	तोरी			
१०	सखि	पिँडालु	१०	माय कँ	दाल			
			११	लाबजा	मकै			
स्वाद जनाउने शब्दहरू			खाद्यपदार्थ तथा खानेकुरा जनाउने शब्दहरू					
क्र.सं	नेवार भाषा	नेपाली भाषा	क्र.सं	नेवार भाषा	नेपाली भाषा	क्र.सं	नेवार भाषा	नेपाली भाषा
१	पाउँ	अमिलो	१	जा	भात	१३	थौं	जाँड
२	चाकु	गुलियो	२	क्वा	तिहुन	१४	अैला	रक्सी
३	खायु	तितो	३	घ्य	घिउ	१५	छुसा	नुन
४	ख्वाउँ	चिसो	४	दुरु	दूध	१६	लाभा	लसुन
५	ताःन्वये	तातो	५	चिकं	तेल	१७	पालु	अदुवा
६	चि	नुनिलो	६	च्या	चिया	१८	खैय्	अण्डा
७	पालु	पिरो	७	न्हीन्से	खाजा	१९	ना/ल	पानी
८	सालु	पातलो	८	खाया ला	कुखुराको मासु	२०	हलू	बेसार
९	ख्वातु	बाग्लो	९	फाया ला	सुँगुरको मासु	२१	छुचुङ्ग	पिठो
१०	धोग्यू	कुहिएको	१०	घोती	मही			
११	टर्रो	टर्रो	११	धौ	दही			
१२	नावल	गन्हाउनु	१२	मल्ला	खुर्सानी			

सर्वनाम, आज्ञा तथा निर्देशन, प्रश्नवाचक शब्द, विशेषण, आदर, नामयोगी र क्रिया जनाउने शब्दहरूमूलतः नेवारी भाषाका आफ्नै शब्दहरू छन्। तथापि नातासम्बन्ध र अभिवादन जनाउने भने

नेपाली भाषाका केही शब्दहरू बुवा, दाजु, भाइ, काकी, देवर, नन्द, भतिजो, भतिजी, हजुर, आदि जस्ता शब्दहरू नेवारी भाषामा पनि सोही शब्दहरूको प्रयोग गरिन्छ । त्यसैले यी शब्दहरूमा दुई भाषाहरूमा समानता रहेको छ ।

तालिका सङ्ख्या २

सर्वनाम, आज्ञा तथा निर्देशन, प्रश्नवाचक शब्द, विशेषण, नातासम्बन्ध, आदर, नामयोगी, क्रिया र अभिवादन जनाउने शब्दहरू

क्र.स	नेवार भाषा	नेपाली भाषा	क्र.स	नेवार भाषा	नेपाली भाषा	क्र.स	नेवार भाषा	नेपाली भाषा
१	जि	म	१	दाने	उठ	१	गौव	कुन ?
२	छ	तँ	२	हुँ	जाऊ	२	सुनड	कसले ?
३	छःप्वः	तपाईं	३	हकी	ल्याऊ	३	गुगु	कसको ?
४	छि	तिमी	४	बुनेव	पढ	४	सुनपा	कोसँग ?
५	जिता	मलाई	५	यामाव	गर	६	छु	के ?
६	आइता	ऊ	६	मकुनेव	नटिप	७	गुली	कति ?
७	भिँपुंता	हामी	७	मनुत्व	नबोल	८	गुबले	कहिले ?
८	जिया	मेरो	८	धाये	भन	९	गनः	कता ?
९	छिया	तिम्रो	९	ब्यू	देऊ	१०	गन्ये	कस्तो ?
१०	भिपुया	हाम्रो	१०	सिलेव	माझ	११	गोश्वेलाड	कताबाट ?
			११	तेव	लगाऊ	१२	गोव	को ?
			१२	फपुलेव	फर्क	१३	सुयाख	कसको ?

क्र.स	नेवार भाषा	नेपाली भाषा	क्र.स	नेवार भाषा	नेपाली भाषा	क्र.स	नेवार भाषा	नेपाली भाषा
१	खायु	तितो	१	अजा	हजुर बुवा	१९	मिसा	श्रीमती
२	तःजा	अग्लो	२	अजी	हजुर आमा	२०	तोयानी	मितिनी
३	ता	होचो	३	माँ	आमा	२१	तोया	मित
४	तान्वये	गर्मी	४	क्या	छोरा	२२	भिन्वा	भान्जा
५	खुँ	जाडो	५	म्या	छोरी	२३	तजु	भाउजु
६	खुँ	चिसो	६	इलिम्चा	बुहारी	२४	जिचाजु	भेनाजु
७	तुयु	सेतो	७	जिचा	ज्वाइँ	२५	पाजु	मामा
८	हाकु	कालो	८	धवुवा	ठुलो बुवा	२६	मलेजू	माइजू
९	बल्ला	मोटो	९	धमाँ	ठुलो आमा	२७	निनी	फुपू
१०	चुकुरौँ	सानो	१०	कका	काका	२८	ससु केँ	साली
११	बाँला	राम्रो	११	काकी	काकी	२९	तता	दिदी
१२	बाँमला	नराम्रो	१२	ससुबुवा	ससुरा	३०	चमाँ	सानो आमा
१३	पालु	पिरो	१३	ससुमाँ	सासू	३१	तता	श्रीमानको भाउजू
१४	पाउँ	अमिलो	१४	छायचा	नाति	३२		
१५	ताहाकः	लामो	१५	छायचाइनी	नातिनी	३३		
१६	म्हासु	पहेंलो	१६	मिजन्तो	श्रीमान्	३४		

क्र.स	नेवार भाषा	नेपाली भाषा	क्र.स	नेवार भाषा	नेपाली भाषा	क्र.स	नेवार भाषा	नेपाली भाषा
१	छ	तँ	१	दुनेः	भिन्न	६	वखे	पर
२	छि	तिमी	२	पिने	बाहिर	७	थानी	माथि
३	छि	तपाईं	३	खे	मा	८	अले	र
४	छि	हजुर	४	निसिं	बाट	९	नपाङ्	सँगै
			५	थिङ्का	सम्म	१०	कुनी	तल

क्र.स	नेवार भाषा	नेपाली भाषा	क्र.स	नेवार भाषा	नेपाली भाषा	क्र.स	नेवार भाषा	नेपाली भाषा
१	कुतुपने	भार्नु	९	न्हिले	हाँस्तु	१७	यामाव	गर्नु
२	नये	खानु	१०	हकेष	ल्याउनु	१८	म्हेती	खेल्लु
३	वान्याये	टोक्नु	११	चुँ/फेतुये	बस्तु	१९	चायेक	खोल्लु
४	भ्वायमाव	ठेल्लु	१२	वने	जानु	२०	फ्यये	चाटनु
५	वायमाव	जोल्लु	१३	तखेव	भाँचु	२१	साँचु	चल्लु
६	दयामाव	कुटनु	१४	हिनेगु	बटानु	२२	काये	भिकनु
७	कुचा	हान्नु	१५	म्हुये	खन्नु	२३	देना	सुल्लु
८	सोयमाव	सिउनु	१६	निने	गन्नु			

क्र.स	नेवार भाषा	नेपाली भाषा	क्र.स	नेवार भाषा	नेपाली भाषा	क्र.स	नेवार भाषा	नेपाली भाषा
१	ज्वजलपा	नमस्कार	३	हजुर	हजुर	५	सुभाय्	धन्यवाद
२	अले अले	हवस्	४	ल्हापु	अभिवादन			

अङ्क र समय, जनाउन मूलतः नेवारी भाषाका आफ्नै शब्दहरू छन् । यद्यपि प्राकृतिक जनाउने केही शब्दहरू र बाह्र महिना, सातवार जनाउने शब्दहरू भने पूर्णतः नेवारी भाषामा पनि नेपाली भाषाका शब्दहरूकै प्रयोग गरिन्छ । त्यसैले यी शब्दहरूमा दुई भाषाहरूबिच केही आंशिक त केहीमा भने पूर्णतः समानता रहेको छ । तलको तालिकाबाट प्रस्ट हुन्छ

तालिका सङ्ख्या ३

अङ्क, समय, प्राकृतिक, बाह्र महिना र सातवार जनाउने शब्दहरू

क्र.स	नेवार भाषा	नेपाली भाषा	क्र.स	नेवार भाषा	नेपाली भाषा	क्र.स	नेवार भाषा	नेपाली भाषा
१	छ	एक	११	भिन्रङ्गू	एघार	२१	नीन्छगू	एक्काइस
२	ने	दुई	१२	भिन्रिगू	बाह्र	२२	नीनिगू	बाइस
३	स्व	तीन	१३	भिन्र स्वंगू	तेह्र	२३	नी स्व	तेइस
४	पे	चार	१४	भिन्र पंगू	चौध	२४	नी स्वंगू	चौबीस
५	न्या	पाँच	१५	भिन्र न्यांगू	पन्ध्र	२५	नी पंगू	पच्चीस
६	खु	छ	१६	भिन्र खुंगू	सोह्र	२६	नी न्यांगू	छब्बीस
७	न्ह	सात	१७	भिन्र न्हेंगू	सत्र	२७	नी खुंगू	सत्ताइस
८	च्या	आठ	१८	भिन्र च्यांगू	अठार	२८	नी न्हेंगू	अठाइस
९	गु	नौ	१९	भिन्र गंगू	उन्नाइस	२९	नी च्यांगू	उन्तीस
१०	भि	दश	२०	नी	बीस	३०	स्वी	तीस

क्र.स	नेवार भाषा	नेपाली भाषा	क्र.स	नेवार भाषा	नेपाली भाषा	क्र.स	नेवार भाषा	नेपाली भाषा
१	नु	दिन	७	न्हप्पा	पहिले	१३	नक्कती	भर्खरै
२	थङ्ग	आज	८	सुथा	बिहान	१४	थागुने	पोहोर
३	कने	भोलि	९	न्होंने	दिउँसो	१५	हन्ने	नजिक
४	कन्सा	पर्सि	१०	बोनी	बेलुका	१६	तापा	टाढा
५	म्हेंगो	हिजो	११	चाने	रात	१७	थागुने	पोहोर
								साल

६ म्हींगो अस्ति १२ दाछी वर्ष

क्र.स	नेवार भाषा	नेपाली भाषा	क्र.स	नेवार भाषा	नेपाली भाषा	क्र.स	नेवार भाषा	नेपाली भाषा
१	ना/ल	पानी	६	तिमिला	जुन	११	कपं	इन्द्रेनी
२	ल्होँ	ढुङ्गा	७	नगु	तारा	१२	असिना	असिना
३	च	माटो	८	सिं	दाउरा	१३	च्वापु	हिउँ
४	सर्ग	आकाश	९	खसु	कुहिरो	१४	मि	आगो
५	निभा:	सूर्य	१०	फय्	हावा			

घरपालुवा जनावर जनाउने शब्दहरूमुलतः नेवारी भाषाका आफ्नै शब्दहरू छन् । तथापि जङ्गली जनावर, किराफट्याङ्गा र घरेलु समानजनाउने शब्दहरू भने नेपाली भाषाका केही शब्दहरू कालिज, गिद्ध, भालु, अरिङ्गाल, शङ्खेकिरा, लार्भा, जुनकिरी, माकुरा, सुलसुले, कैची, गुलेली, भ्याल, चिम्टा, चुलेसी, बाल्टिन,डालो, आदि जस्ता शब्दहरू नेवारी भाषामा पनि सोही शब्दहरूको प्रयोग गरिन्छ । त्यसैले यी शब्दहरूमा दुई भाषाहरूमा समानता रहेको छ । यिनका केही शब्दहरू तलको तालिकामा प्रस्तुत गरिएका छन् :

तालिका सङ्ख्या ४

जङ्गली जनावर,			किराफट्याङ्गा, घरपालुवा जनावर			र घरेलु सामान जनाउने शब्दहरू		
क्र.स	नेवार भाषा	नेपाली भाषा	क्र.स	नेवार भाषा	नेपाली भाषा	क्र.स	नेवार भाषा	नेपाली भाषा
१	क्व	काग	१	कुसी	उपियाँ	१	खिचा	कुकुर
२	इमा	चील	२	की	किरा	२	खा	कुखुरा
३	धुँ	बाघ	३	इमुचा	कमिला	३	सा	गाई
४	चुसा	दुम्सी	४	पाँति	लामखुट्टे	४	बासा	गोरु
५	छुँ	मुसा	५	ब्बये	फिँगा	५	भुचा	बि ब र लो
६	तेन्हु	मृग	६	सि	जुम्रा	६	फा	सुँगुर
७	ध्वँ	स्याल	७	कस्तिहा	माहुरी	७	हँय्	हाँस
८	किसि	हात्ती	८	बिल्ली	साडलो	८	बखुं	परेवा
९	चल	हरिण	९	लापा	पुतली	९	दुगुचा	बाखा
१०	ताहा:	सर्प	१०	हइ	खजुरो	१०	मेय्	भैंसी
११	चिकंलापा	चमेरा	११	कुमि	धमिरा	११	फै	भेडा
१२	सुकुभत्तु	ढुकुर	१२	की	जुका	१२	ग्वंग:	भाले
१३	नव:चा	नय । उ री मुसा	१३	भूपति	भुसुना	१३	माखा	पोथी
१४	भतु	सुगा	१४	द्व: बि	गड्यौला	१४	गाधुँ	गधा

१५	गौरा मेय्	गैंडा	१५	किमि	पेटमा पर्ने जुका	१५	डा	माछा
१६	गलह	गोही				१६	सल	घोडा

क्र.स	नेवार भाषा	नेपाली भाषा	क्र.स	नेवार भाषा	नेपाली भाषा	क्र.स	नेवार भाषा	नेपाली भाषा
१	प	बन्चरो	८	पुलु	भकारी	१५	अँग्याले	चुल्हो
२	तुफि	कुच्चो	९	छें	घर	१६	नउ	खरानी
३	चुपी	खुकुरी	१०	चेबी	ढोको	१७	नाइखी	नाम्लो
४	मल्ल	गुन्द्री	११	चाया धपो	माटाको घैटो	१८	इचा	हँसिया
५	लुखा	ढोका	१२	कर्दो	चक्कु	१९	थाँला	भाँडा
६	मुलु	सियो	१३	कसुला	पन्यू	२०	ओखली	अखली
७	का	धागो	१४	धचा	डाडु			

शरीरका अङ्गहरूमा जनाउने शब्दहरू मुलतः नेवारी भाषाका आफ्नै शब्दहरू छन् । यद्यपि गहना, भेषभुषा तथा लत्ताकपडा र रङ जनाउने शब्दहरू भने नेपाली भाषाका केही शब्दहरू फुली, टप, ढुङ्ग्री, कुर्ता, पेन्ट, निलो, बैजनी, आदि जस्ता शब्दहरू नेवारी भाषामा पनि सोही शब्दहरूको प्रयोग गरिन्छ । त्यसैले यी शब्दहरूमा दुई भाषाहरू बिच आंशिक समानता रहेको छ ।

तालिका सङ्ख्या ५

गहना, भेषभुषा तथा लत्ताकपडा, रङ र शरीरका अङ्गहरू जनाउने शब्दहरू

क्र.स	नेवार भाषा	नेपाली भाषा	क्र.स	नेवार भाषा	नेपाली भाषा	क्र.स	नेवार भाषा	नेपाली भाषा
१	अंगू	औँठी	१	तुपुलि	टोपी	१	ह्याउँ	रातो
२	लुँ	सुन	२	लाकाँ	जुत्ता	२	तुयू	सेतो
३	वहः	चाँदी	३	कमिज	सट	३	वाउँ	हरियो
४	जःम्	माला	४	हेङ्जु	चोली	४	म्ह्वासु	पहेँलो
५			५	पटासी	साडी	५	हाकु	कालो
			६	नम्पा	चोली			
			७	जनी	पटुका			

क्र.स	नेवार भाषा	नेपाली भाषा	क्र.स	नेवार भाषा	नेपाली भाषा	क्र.स	नेवार भाषा	नेपाली भाषा
१	मुहुँतु	मुख	१०	न्यातः	गाला	१९	कपा	टाउको
२	मिखा	आँखा	११	स्वँ	फोक्सो	२०	जलासें	मृगौला
३	मिखाफुसि	आँखी भौँ	१२	वा	दाँत	२१	पतिं	औँला

४	म्हुतुसि	ओठ	१३	गपो	घाँटी	२२	दवला	हत्केला
५	प्वा	पेट	१४	पुली	घुँडा	२३	ख्वा	अनुहार
६	सायाँ	कपाल	१५	ल्हा	हात	२४	आँते कुति	आन्द्रा
७	न्येपो	कान	१६	तुति	खुट्टा	२५	म्ह	शरीर
८	मे	जिब्रो	१७	नैपा	छाती	२६	वाका	च्यापू
९	न्याहा	नाक	१८	पुली	नङ्			

तालिका सङ्ख्या १ मा फलफुल जनाउने १३ ओटा, अन्नबाली तथा गेडागुडी जनाउने १२ ओटा, सागपात तथा तरकारी जनाउने १३ ओटा, स्वाद जनाउने १२ ओटा र खाद्य पदार्थ तथा खानेकुरा जनाउने २२ ओटा शब्दहरू। त्यस्तै गरी तालिका सङ्ख्या २ मा सर्वनाम जनाउने १० ओटा, आज्ञा तथा निर्देशन जनाउने १२ ओटा, प्रश्नवाचक शब्द जनाउने १३ ओटा, विशेषण जनाउने १६ ओटा, नातासम्बन्ध जनाउने ३६ ओटा, आदर जनाउने ४ ओटा, नामयोगी जनाउने १० ओटा, क्रिया जनाउने २३ ओटा र अभिवादन जनाउने ५ ओटा शब्दहरू रहेका छन्। त्यस्तै गरी तालिका सङ्ख्या ३ मा अङ्क जनाउने ३० ओटा, समय जनाउने १७ ओटा, प्राकृतिक जनाउने १४ ओटा, बाह्य महिना जनाउने १२ ओटा र सातबार जनाउने ७ ओटा शब्दहरूको व्यतिरेकी अध्ययन गरिएको छ। त्यस्तै गरी तालिका सङ्ख्या ४ मा जङ्गली जनावर जनाउने १९ ओटा, किराफट्याङ्ग्रा जनाउने २१ ओटा, घरपालुवा जनावर जनाउने १६ ओटा र घरेलु सामान जनाउने २८ ओटा शब्दहरू र तालिका सङ्ख्या ५ मा गहना जनाउने ७ ओटा शब्दहरू, भेषभुषा तथा लत्ताकपडा जनाउने ९ ओटा शब्दहरू, रङ्ग जनाउने ७ ओटा शब्दहरू र शरीरका अङ्गहरू जनाउने २६ ओटा शब्दहरूको व्यतिरेकी अध्ययन गरिएको छ।

निष्कर्ष

नेपाली र नेवारी भाषाका शब्दहरूको व्यतिरेकी अध्ययन शीर्षकको प्रस्तुत अध्ययनमा धनकुटा जिल्लाको वडा नम्बर चार, पाँच, छ र सातमा बोलिने नेवारी भाषा र नेपाली भाषाका ४२४ शब्दहरूलाई सीमा निर्धारण गरेर व्यतिरेकी अध्ययन गरिएको छ। क्षेत्रीय अध्ययन विधिमा आधारित भएर गरिएको यस अध्ययनले धनकुटा नगरपालिकाका ४, ५, ६ र ७ नम्बर वडामा बोलिने नेवारी भाषाका शब्दहरूलाई जनाउन नेवारी भाषाका आफ्नै छुट्टै शब्दहरू भए तापनि केही शब्दहरूलाई जनाउन भने देवनागरी लिपिको नेपाली भाषाका शब्दहरूको प्रयोग गर्ने गरेको पाइयो। नेवारी भाषाका आफ्नै लिपि भए तापनि देवनागरी लिपिको प्रयोग गर्ने गरिएको पाइयो। श्रेष्ठ (२०६०), श्रेष्ठ (२०५९), महर्जन (२०५४) र नेवार (२०६३) ले बताएअनुसार दोलखा तथा ताप्लेजुङका नेवार भाषी समुदायले बोल्ने भाषाका व्यतिरेकी तथा त्यसका विविध पक्षहरू विच विश्लेषणात्मक अध्ययन गरिएको र मैले पनि नेवार भाषी समुदायको बसोबास रहेको धनकुटा नगरपालिका वडा नं. ४, ५, ६ र ७ का एउटा सानो मात्र अध्ययनका लागि नमुना छनोट गरेकाले भावी दिनमा अझ बृहत् तरिकाले खोज, अध्ययन र अनुसन्धान गर्न सकिनेछ। नेवारी भाषा संस्कृति र लिपिलाई अझ बढी विकास र विस्तार गर्न र संरक्षण गर्न यस भाषासम्बन्धी प्रशस्त मात्रामा खोज अनुसन्धान हुन आवश्यक देखिन्छ।

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ऐतिहासिक भाषाविज्ञानका सन्दर्भमा नेपाली भाषा

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लेखसार

यस लेखमा ऐतिहासिक भाषाविज्ञानको परिचय, अध्ययन क्षेत्र र नेपाली भाषाको ऐतिहासिक अध्ययन गरिएको छ। भाषाको उत्पत्ति, विकास, परिवर्तनका आन्तरिक र बाह्य कारण, वर्गीकरण, दुई वा दुईभन्दा बढी समयको कालिक अध्ययन, स्थानिक अध्ययन र पुनर्निर्माण के कसरी भएको छ त्यसको अध्ययन ऐतिहासिक भाषाविज्ञानले गर्दछ। यस अध्ययनमा पुस्तकालयीय अध्ययनद्वारा सामग्री सङ्कलन गरिएको छ। सुविधाजनक र उद्देश्यमूलक नमुना छनोट विधिबाट प्राप्त भएका सूचनाका आधारमा व्याख्या विश्लेषण गरिएको छ। यस अध्ययनमा दस्तावेज, भाषा र व्याकरणका पुस्तक, पुराना ग्रन्थ, लेखरचना, पत्रपत्रिका आदिबाट सामग्री सङ्कलन गरी विश्लेषण गरिएको छ। यस अध्ययनमा ऐतिहासिक भाषाविज्ञानको परिचय, अध्ययन क्षेत्र र नेपाली भाषाको ऐतिहासिक स्वरूप केकस्तो छ ? भन्ने प्रश्नमा केन्द्रित रहेर त्यसको व्याख्या विश्लेषण गरिएको छ। ऐतिहासिक भाषाविज्ञानका बारेमा अध्ययन अनुसन्धान गर्न चाहनेहरूका लागि यो लेख औचित्यपूर्ण र उपयोगी हुनेछ। ऐतिहासिक भाषाविज्ञानमा भाषाको विकास, परिवर्तनको कारण, कालिक र स्थानिक अध्ययन र भाषिक पुनर्निर्माण आदि कारणको खोजी गरिन्छ। प्रस्तुत अनुसन्धानमूलक लेखमा वर्णनात्मक र विश्लेषणात्मक विधिको अवलम्बन गरिएको छ। यस अध्ययनमा सङ्कलित सामग्रीलाई गुणात्मक ढाँचामा आधारित भई विश्लेषण गरिएको छ।

शब्दकुञ्जी : अध्ययन क्षेत्र, पुनर्निर्माण, कालिक, स्थानिक अध्ययन, पद्धति, ।

परिचय

भाषाविज्ञानका विभिन्न शाखाहरूमध्ये ऐतिहासिक भाषाविज्ञान एक महत्पूर्ण शाखा मानिन्छ। भाषाविज्ञानको अध्ययन गर्ने प्रमुख पद्धतिमा ऐतिहासिक, तुलनात्मक र वर्णनात्मक पर्दछन्। भाषाको उत्पत्ति, विकास, परिवर्तन, वर्गीकरण, पुनर्निर्माण आदि विभिन्न पक्षको अध्ययन ऐतिहासिक भाषाविज्ञानमा गरिन्छ। भाषाको ऐतिहासिक पक्षको वैज्ञानिक अध्ययन गर्ने परम्पराको थालनी १९ औं शताब्दीमा भएको हो। भाषाविज्ञानको उत्पत्ति, विकास र परिवर्तनको अध्ययन गर्ने मुख्य

शाखा नै ऐतिहासिक भाषाविज्ञान मानिन्छ । साथै समयसँगसँगै भाषामा आएको परिवर्तनलाई अध्ययन गर्ने विज्ञानलाई ऐतिहासिक भाषाविज्ञान भनिन्छ । शर्मा र बराल (२०५५) का विचारमा कुनै भाषाको दुई भिन्न विन्दुलाई वा पूरै इतिहासको अध्ययन ऐतिहासिक भाषाविज्ञानले गर्दछ (पृ. ९) । भाषाका विभिन्न क्षेत्रहरू ध्वनि, वर्ण, रूप, वाक्य, अर्थ आदिमा केकस्तो र कसरी परिवर्तन भएको छ, त्यसको अध्ययन ऐतिहासिक भाषाविज्ञानमा गरिन्छ । यसलाई बहुकालिक भाषाविज्ञान पनि भनिन्छ । भाषाको कालक्रमिक परिवर्तन तथा विकासको अध्ययनलाई ऐतिहासिक भाषाविज्ञान भनिन्छ (शर्मा र लुइटेल, २०६४, पृ. २२७) । ऐतिहासिक भाषाविज्ञानको पृष्ठभूमि १८ औं शताब्दीमा भए तापनि यसको प्रारम्भ १९ औं शताब्दीमा भएको मानिन्छ । विलियम जोन्सले संस्कृत, ग्रीक, ल्याटिन, गोथिक, केल्टिक र फारसी भाषा एउटै मूल भाषाबाट विकसित भएको हो भन्ने अवधारणाका आधारमा यसलाई ऐतिहासिक भाषाविज्ञानको प्रारम्भिक जग मानिन्छ (भुसाल, २०७०, पृ. ३०४) । यसरी भाषाको ऐतिहासिक अध्ययन गर्ने एक छुट्टै शाखाका रूपमा ऐतिहासिक भाषाविज्ञान विकसित भएको देखिन्छ । ऐतिहासिक भाषाविज्ञानको प्रारम्भपछि नै भाषाको व्यवस्थित अध्ययन भएको मानिन्छ ।

ऐतिहासिक भाषाविज्ञानले भाषामा भएको सिङ्गो इतिहासको विकास, परिवर्तन, परिवर्तनका आन्तरिक र बाह्य कारणलाई अध्ययन गर्दछ । दुई वा दुईभन्दा बढी समयको कालिक अध्ययन, समग्र कालको अध्ययन, स्थानिक अध्ययन, भाषाको उद्भव र वर्गीकरण के कसरी भएको छ आदिको समग्र अध्ययन विश्लेषण गर्ने काम ऐतिहासिक भाषाविज्ञानले गर्दछ । भुसाल (२०७०) का विचारमा ऐतिहासिक भाषाविज्ञान भाषान्तरिक अन्तर्भाषिकसँग सम्बन्धित हुन्छ (पृ. २९८) । भाषान्तरिकमा एउटै भाषाका ध्वनि, वर्ण, रूप, शब्द, वाक्य र अर्थ आदिमा समयानुसार देखापर्ने विकास र परिवर्तनको अध्ययन गरिन्छ । अन्तर्भाषिक अध्ययनमा विभिन्न भाषामा भएको परिवर्तनलाई हेरिन्छ । ऐतिहासिक भाषाविज्ञान प्राचीन अभिलेखमा आधारित हुने हुँदा भाषा कसरी परिवर्तन हुँदै वर्तमान स्वरूपमा आइपुगेको छ भन्ने वास्तविकताको खोजी यस भाषाविज्ञानले गर्दछ । संस्कृत > प्राकृत > अपभ्रंश हुँदै आधुनिक आर्यभाषा नेपाली, मैथिली, भोजपुरी आदि भाषाको विकासका साथै परिवर्तनको क्रम हेर्ने काम ऐतिहासिक भाषाविज्ञानमा गरिन्छ ।

भाषाविज्ञानको ऐतिहासिक अध्ययनको सम्बन्ध के भएको थियो भन्ने भूतकालसँग सम्बन्धित हुन्छ । यस अध्ययनले वर्तमान र भविष्यको अध्ययन नगरी भाषासँग सम्बन्धित ऐतिहासिक विषयवस्तुको अध्ययन विश्लेषण गर्दछ । ऐतिहासिक भाषाविज्ञानले भाषाका एकाइहरू ध्वनि, वर्ण, रूप, वाक्य, अर्थ आदिको ऐतिहासिक सम्बन्ध खोजी गर्दछ । समाज, भाषा, भाषिका, साहित्य आदिको अध्ययन ऐतिहासिक भाषाविज्ञानसँग प्रत्यक्ष जोडिएको हुन्छ । ऐतिहासिक भाषाविज्ञानले वर्तमान र भविष्यको भाषालाई प्रभावित पारेको हुन्छ । ऐतिहासिक भाषाविज्ञानमा भाषाको तर्कसङ्गत किसिमले खोज गरी सूचना वा प्रमाणका आधारमा निष्कर्षमा पुगिन्छ । ऐतिहासिक विषयको तथ्याङ्क सङ्कलन गर्दा त्यसको प्रमाण जुटाउन, वैधता हासिल गर्न र परीक्षण गरी व्याख्या विश्लेषण गर्न अनुसन्धानकर्ता सचेत हुनुपर्दछ । भाषाको ऐतिहासिक अध्ययनमा सरकारका निर्णय, अधिकारपत्र, अनुमतिपत्र, घोषणापत्र, व्यक्ति विशेषको आत्मवृत्तान्त, घटना वर्णन, दैनिकी, कार्यालयसम्बन्धी अभिलेख, ताम्रपत्र, शिलापत्र, बिल भौचर, समाचारपत्र आदिबाट तथ्याङ्क सङ्कलन गर्न सकिन्छ ।

ऐतिहासिक भाषाविज्ञान र नेपाली भाषाको पहिचान गरी यसको अध्ययन क्षेत्र, उत्पत्ति, विकास, परिवर्तनका कारण, वर्गीकरण, पुनर्निर्माण र नेपाली भाषामा ऐतिहासिक अध्ययन केकसरी गरिएको छ ? भन्ने प्रश्न नै प्रस्तुत अध्ययनको मुख्य समस्या हो । ऐतिहासिक भाषाविज्ञानको पहिचान गरी यसका अध्ययन क्षेत्र र नेपाली भाषाको व्याख्या विश्लेषण गरी एउटा निष्कर्षमा कसरी पुग्न सकिन्छ ? भन्ने प्रश्नलाई समस्या बनाएर प्रस्तुत लेख तयार गरिएको छ ।

ऐतिहासिक भाषाविज्ञानको पहिचान, क्षेत्र र नेपालीभाषाका बारेमा उत्पन्न समस्याको समाधान गर्नु नै यस अध्ययनको उद्देश्य हो । ऐतिहासिक भाषाविज्ञानको पहिचान, भाषाको उत्पत्ति, विकास, स्थानिक, परिवर्तनका कारण, वर्गीकरण, पुनर्निर्माण र नेपाली भाषामा ऐतिहासिक अध्ययन पद्धतिको बारेमा प्राप्त तथ्यका आधारमा व्याख्या विश्लेषण गरी एउटा निष्कर्षमा पुग्न यस अनुसन्धानमूलक लेखको उद्देश्य रहेको छ ।

अध्ययन विधि

प्रस्तुत अध्ययन वर्णनात्मक तथा विश्लेषणात्मक ढाँचामा आधारित रहेको छ । यस लेखमा विषयवस्तुको सरसर्ती वर्णन गरिएको छ । यस अनुसन्धानमूलक लेखमा प्राथमिक र द्वितीय स्रोतबाट सामग्री सङ्कलन गरी विश्लेषण गरिएको छ । यस अध्ययनमा पुस्तकालयीय अध्ययनद्वारा सामग्री सङ्कलन गरिएको छ । ऐतिहासिक भाषाविज्ञानका बारेमा प्रकाशित भाषा र व्याकरणका पुस्तक, पुराना ग्रन्थ, लेखरचना, पत्रपत्रिका आदिबाट सामग्री सङ्कलन गरिएको छ । यस लेखमा सुविधाजनक र उद्देश्यमूलक नमुना छनोट विधिबाट प्राप्त भएका सूचनाका आधारमा व्याख्या विश्लेषण गरिएको छ । ऐतिहासिक भाषाविज्ञानसम्बन्धी पूर्ववर्ती अध्येताहरूले गरेका अध्ययन विश्लेषणबाट द्वितीयक सामग्री सङ्कलन गर्नुका साथै ऐतिहासिक भाषाविज्ञानको सैद्धान्तिक पक्षको अध्ययन गरी त्यसका आधारमा विश्लेषण गरिएको छ । यस लेखमा ऐतिहासिक भाषाविज्ञानको पहिचान, अध्ययन क्षेत्र र नेपाली भाषाको ऐतिहासिक अध्ययन पद्धतिका बारेमा केन्द्रित रहेर विश्लेषण गरिएको छ । सैद्धान्तिक आधारमा व्याख्या विश्लेषण गरिएको हुँदा यसमा गुणात्मक अध्ययन पद्धति अवलम्बन गरिएको छ । यस अध्ययनको अन्त्यमा प्राप्त भएका सूचना र सामग्रीका आधारमा व्याख्या विश्लेषण गरी निष्कर्ष निकालिएको छ ।

सैद्धान्तिक अवधारणा

ऐतिहासिक भाषाविज्ञान र नेपाली भाषाको अध्ययन गर्ने सन्दर्भमा सिद्धान्त निर्माण गरिएको छ । सैद्धान्तिक आधारबिना गरिएको विश्लेषण वास्तविक र अनुसन्धानमूलक हुन सक्दैन । ऐतिहासिक भाषाविज्ञानको सैद्धान्तिक आधार निर्माण गर्ने क्रममा शर्मा र शर्मा (सन् १९९९), शर्मा (सन् १९९६), श्रीवास्तव (सन् १९९७), तिवारी (सन् २००६), रावत (सन् २००५), पाँडे (सन् २००७) लाई सन्दर्भका रूपमा लिइएको छ । नेपाली भाषाबाट सन्दर्भ लिने क्रममा अधिकारी (२०४९), (२०५२), (२०६२) र (२०६८), गिरी, (२०५१), न्यौपाने (२०६१), बन्धु (२०५३), गौतम र लुइटेल (२०५३), पोखरेल (२०५४), शर्मा र बराल (२०५५), शर्मा (२०५६) यादव र रेग्मी (२०५८) लाई आधार बनाइएको छ । विश्वविद्यालयको औपचारिक तह पूरा गर्ने प्रयोजनका लागि तयार पारिएका शोधपत्र र शोधप्रबन्धहरूलाई सिद्धान्तका

रूपमा उपयोग गरिएको छ । यस अध्ययनमा ऐतिहासिक भाषाविज्ञान र नेपाली भाषामा अध्ययनभएका अनुसन्धानमूलक लेखलाई समेत प्रयोग गरिएको छ ।

नतिजा र छलफल

परिणाम र छलफलअन्तर्गत अध्ययन अनुसन्धानबाट प्राप्त विभिन्न तथ्यहरूलाई उपशीर्षकहरू तय गरी व्याख्या विश्लेषण गरिएको छ । तिनलाई निम्नानुसार विभिन्न उपशीर्षकमा राखी प्राप्त नतिजाका आधारमा निष्कर्षमा पुगिएको छ ।

ऐतिहासिक भाषाविज्ञान

मानवीय अनुभव र अनुभूतिलाई सम्प्रेषण गर्ने सशक्त माध्यम भाषा हो । भाषाका बारेमा पूर्वीय तथा पाश्चात्य विद्वानहरूले प्रशस्त चिन्तनमनन गरेका छन् । भाषा मानव मात्रको विशिष्ट सम्पत्ति भएकाले समय, समाज र संस्कृतिका सम्पूर्ण कुराहरूलाई प्रस्तुत गर्न, अर्को पुस्तामा हस्तान्तरण गर्न र भाषालाई व्यवस्थित बनाउन पौरस्त्य तथा पाश्चात्य चिन्तन परम्परामा विभिन्न अध्ययन पद्धतिको प्रयोग भएको पाइन्छ । ऐतिहासिक भाषाविज्ञानले भाषाका ध्वनि, वर्ण, रूप, वाक्य, अर्थलगायत भाषासँग सम्बन्धित अन्य पक्षमा वैज्ञानिक अध्ययन र चिन्तन गरी सैद्धान्तिक र प्रायोगिक क्षेत्रमा महत्वपूर्ण योगदान दिएको छ । भाषाको अध्ययनमा ऐतिहासिक, कालक्रमिक, समकालिक, तुलनात्मक, सैद्धान्तिक, प्रायोगिक आदि विभिन्न पद्धति प्रयोग भएका छन् । ऐतिहासिक भाषाविज्ञानले पौरस्त्य तथा पाश्चात्य भाषिक चिन्तनको अध्ययन गरेको छ । पौरस्त्य भाषिक चिन्तनमा मानव समाजको उत्पत्तिसँगै भाषाको विकास भए तापनि यसको अध्ययन परम्परा धेरैपछि मात्र सुरु भएको पाइन्छ । विश्वमा सर्वप्रथम भाषाको ऐतिहासिक चिन्तन गर्ने परम्परा पूर्वमा भएको मानिन्छ । पूर्वीय भाषिक चिन्तनमा ऐतिहासिक रूपमा सर्वप्राचीन मानिएको ऋग्वेद र उत्तरवैदिक कालका ब्राह्मण, आरण्यक, उपनिषद् र वेदाङ्गहरू हुँदै वैदिक र लौकिक संस्कृत भाषाका विषयमा व्यापक चर्चा भएको देखिन्छ । ऐतिहासिक पद्धतिले पश्चिमी परम्परागत भाषिक चिन्तनमा सुकरात, प्रोटागोरस, प्लेटो, अरिस्टोटल, स्टोइक र अलेक्जेन्डर, डायोनिसस थ्रेक्स आदिको भूमिका महत्वपूर्ण रहेको तथ्यलाई स्वीकार गरेको छ ।

पूर्वीय परम्परामा भाषासम्बन्धी ऐतिहासिक खोजी गर्ने काम ऋग्वेदमा प्रयोग भएको 'चत्वारि वाक्' शब्दबाट प्रारम्भ भएको मानिन्छ (भुसाल, २०७०, पृ. २९९) । वाणीका चार रूपहरू परा, पश्यन्ती, मध्यमा र वैखरीमध्ये भाव वा विचारलाई व्यक्त गर्ने काम वैखरीले गर्दछ । परा, पश्यन्ती र मध्यमालाई वाणीको अव्यक्त रूप मानिन्छ । शब्दको व्युत्पत्ति, ध्वनि अवयव, उच्चारण र ह्रस्वदीर्घका बारेमा विवेचना गरिएको निरुक्त, अर्थको जानकारी दिने शब्दकोशको प्रारम्भिक रूप निघण्टु, पाणिनिद्वारा रचना गरिएको ३९९५ सूत्र रहेको सर्वप्राचीन व्याकरण अष्टाध्यायी आदिको ऐतिहासिक भाषाविज्ञानमा महत्वपूर्ण भूमिका रहेको छ (न्यौपाने, भण्डारी र न्यौपाले, २०६७, पृ. २-३) । वेदका छ अङ्गहरू शिक्षा, कल्प, ज्योतिष, निरुक्त, छन्द र व्याकरणमध्ये शिक्षा, निरुक्त, छन्द र व्याकरण ऐतिहासिक भाषाविज्ञानको अध्ययन क्षेत्रसँग सम्बन्धित छन् । पाणिनि, कात्यायन र पतञ्जलि तथा भरतमुनि, भामह दण्डी, वामन, रुद्रट मम्मट जस्ता आचार्यहरूले भाषाका बारेमा ऐतिहासिक रूपमा चर्चा परिचर्चा गरेका छन् ।

ऐतिहासिक भाषाविज्ञानमा आधुनिक भाषाविज्ञानका जन्मदाता संरचनाविद् भाषा वैज्ञानिक फर्डिन्याण्ड डी. सस्युर (१८५७-१९१३), रूपार्थपरक व्याकरणका पाइक (१९५४), व्यवस्थापरक व्याकरणका ह्यालिडे (१९६१), रूपान्तरण व्याकरणका नोम चम्स्की (१९५७), कारक व्याकरणका फिल्मोर (१९६५), स्तरपरक व्याकरणका ल्याम्ब (१९६२) को महत्त्वपूर्ण योगदान रहेको छ । ऐतिहासिक भाषाविज्ञानको विकासमा रसियाली सम्प्रदाय, प्राग सम्प्रदाय, फ्रान्सेली सम्प्रदाय, कोपेनहेगन सम्प्रदाय तथा रूपार्थपरक व्याकरण, व्यवस्थापरक व्याकरण, रूपान्तरण व्याकरण, कारक व्याकरण आदिको महत्त्वपूर्ण भूमिका रहेको छ । पश्चिमी ऐतिहासिक भाषिक चिन्तन परम्परा विभिन्न चिन्तक र तिनका दर्शन तथा मिश्र, ग्रीक, रोमन र अङ्ग्रेजी सभ्यताको विकाससँगै अगाडि बढेको देखिन्छ ।

ऐतिहासिक भाषाविज्ञानले भाषान्तरिक र अन्तर्भाषिक अध्ययन गर्दछ । एउटै भाषामा समयअनुसार कसरी परिवर्तन भएको छ त्यसको अध्ययन भाषान्तरिकमा गरिन्छ । एउटा भाषा र अर्को भाषाबिचमा, एउटै भाषिक परिवारका बिचमा तथा एउटा भाषिक परिवार र अर्को भाषिक परिवारका बिचमा के, कति समानता र भिन्नता छ त्यसको अध्ययन अन्तर्भाषिक अध्ययनमा गरिन्छ । भाषिक इतिहासको कालक्रमिक अध्ययन नै ऐतिहासिक भाषाविज्ञान हो । भाषाको उत्पत्ति कसरी भयो ? कसरी परिवर्तन हुँदै आजको अवस्थासम्म आइपुग्यो ? ध्वनि वर्ण, रूप, वाक्य, अर्थलगायत अन्य भाषिक एकाइहरूको कालक्रमिक अध्ययन विश्लेषण गर्ने काम ऐतिहासिक भाषाविज्ञानले गर्दछ । भाषाको प्राचीन, मध्यकालीन र आधुनिक कालको सामग्री सङ्कलन गरी विश्लेषण गर्ने काम ऐतिहासिक भाषाविज्ञानले गर्दछ । कुनै शब्द संस्कृत प्राकृत हुँदै नेपाली भाषामा आइपुग्दा कसरी परिवर्तन भएको छ त्यसको ऐतिहासिक विकासक्रम हेर्ने काम ऐतिहासिक भाषाविज्ञानले गर्दछ ; जस्तै :संस्कृत, प्राकृत, नेपाली र थारू भाषामा के कसरी परिवर्तन भएर प्रयोग गरिएको छ त्यसको ऐतिहासिक विकासक्रम हेर्न सकिन्छ :

संस्कृत	प्राकृत	नेपाली	थारू
हस्त	हत्त	हात	हाथ
पत्र	पत्त	पात	पतिया

माथि प्रस्तुत उदाहरणबाट ऐतिहासिक र तुलनात्मक भाषाविज्ञानबिचमा नजिकको सम्बन्ध रहेको देखिन्छ । ऐतिहासिक भाषाविज्ञानले भाषाको उत्पत्ति, विकास, परिवर्तन, वर्गीकरण आदिको कालक्रमिक इतिहासको अध्ययन गर्दछ भने तुलनात्मक भाषाविज्ञानले दुई भाषाबिचको तुलनात्मक अध्ययन गर्दछ । ऐतिहासिक पद्धतिले अध्ययनलाई व्यवस्थित र वैज्ञानिक बनाउने हुँदा भाषिक अध्ययनमा यसको आवश्यकता देखिन्छ ।

ऐतिहासिक भाषाविज्ञानको अध्ययनको क्षेत्र

लेखको यस उपशीर्षकमा ऐतिहासिक भाषाविज्ञानको अध्ययन क्षेत्रअन्तर्गत विकास, परिवर्तन, परिवर्तनको कारण, कालिक र स्थानिक अध्ययन तथा पुनर्निर्माण शीर्षकमा विभाजन गरी अध्ययन गरिएको छ ।

विकासको अध्ययन : ऐतिहासिक भाषाविज्ञानले एक वा अनेक भाषाको विकासको अध्ययन गर्दछ । भाषाको उत्पत्ति, विकास, स्वरूप, परिवार आदिको अध्ययन अनुसन्धान ऐतिहासिक भाषाविज्ञानले

गर्दछ । ऐतिहासिक भाषाविज्ञानले भाषाको विकासको अध्ययन गर्दा कुनै पनि भाषाको पुरानो स्वरूप कस्तो थियो ? र पुरानो भाषिक स्वरूपबाट नयाँ स्वरूपमा आउँदा के कति परिवर्तन भयो त्यसको खोजी गर्दछ । शर्मा र लुइटेल (२०६४) का विचारमा समय क्रममा कुनै भाषाको विकास के कसरी भयो भन्ने अध्ययन ऐतिहासिक भाषाविज्ञानले गर्दछ (पृ. २२७) । भाषा कसरी विकसित हुँदै वर्तमान स्वरूपमा आइपुगेको छ भन्ने अध्ययन ऐतिहासिक भाषाविज्ञानको क्षेत्रभित्र पर्दछ । जस्तै : नेपाली भाषामा भानुभक्त आचार्यले प्रयोग गरेका क्रियापदहरू 'जान्या' जान्यो, 'मान्या' मान्यो, 'गया' गयो, 'भया' भयो, 'खाया' खायो किन, कहिले र कसरी परिवर्तन भए भन्ने बारेमा अध्ययन ऐतिहासिक भाषाविज्ञानमा गरिन्छ । यसमा भाषाको उत्पत्ति, विकास र भाषाको वर्गीकरणको अध्ययन गर्न सकिन्छ । कुनै पनि भाषाको प्रारम्भिक स्वरूप पहिल्याउन कठिन हुन्छ । भाषा कहिले उत्पत्ति भयो ? कसरी यसले आफ्नो यात्रा प्रारम्भ गर्‍यो ? र कसरी कति भागमा वर्गीकरण गरिएको छ ? आदिको अध्ययन ऐतिहासिक भाषाविज्ञानमा गरिन्छ ।

परिवर्तनको अध्ययन : भाषा परिवर्तनशील हुन्छ । समयअनुसार परिवर्तन हुनु भाषाको विशेषता हो । भाषामा परिवर्तन समय, दूरी, र भौगोलिकताका आधारमा हुन्छ । भाषाका परिवर्तन ध्वनि, वर्ण, रूप व्याकरण, अर्थ सबै क्षेत्रमा भए पनि बढी परिवर्तन ध्वनिमा देखिन्छ । भाषालाई परिवर्तन गर्ने अन्य तत्त्वहरूमा धर्म, वर्ण, जात, जाति, लिङ्ग, पेसा, शिक्षित, अशिक्षित आदि पर्दछन् । नेपाली भाषाका सन्दर्भमा वि. सं. १३१२ को अशोक चल्लको दामुपालको भाषा, भानुभक्तको रामायणको भाषा, रुद्रराजको रूपमतीको भाषा र वर्तमानमा प्रयोगमा आएको नेपाली भाषामा स्पष्ट भिन्नता देखिन्छ । यसरी विभिन्न कालखण्डमा भाषामाके, कति र कसरी परिवर्तन हुँदै आयो त्यसको अध्ययन ऐतिहासिक भाषाविज्ञानमा गरिन्छ । भाषामा हुने परिवर्तन बिस्तारै हुने हुँदा यसले परिवर्तित स्वरूपलाई ग्रहण गर्न लामो समय लाग्दछ । प्राथमिक कालीन नेपाली भाषा पावबाट पाउँनु, आवबाट आउँनु, करबाट गर्छ र माध्यामिक कालीन नेपाली भाषा णानुबाट खानु, दषिनबाट दक्षिण, बहिणीबाट बहिनी, णानुपिणुबाट खानुपिणुमा परिवर्तन हुन धेरै समय लागेको देखिन्छ । यसरी भाषामा परिवर्तन हुने परिवर्तनको अध्ययन ऐतिहासिक भाषाविज्ञानमा गरिन्छ ।

भाषामा आन्तरिक र बाह्य दुई कारणले परिवर्तन हुन्छ । भाषाको आन्तरिक परिवर्तन मुख्य गरी ध्वनि र शब्दमा गरिन्छ । भाषामा बाह्य परिवर्तन सामाजिक, ऐतिहासिक, राजनैतिक सांस्कृतिक आदि कारणले हुने गर्दछ । विदेशी वस्तुको प्रयोग, वैज्ञानिक आविष्कार, प्राविधिक उन्नति, सांस्कृतिक आदि विभिन्न कारणले भाषामा परिवर्तन हुन्छ भने त्यसलाई भाषामा हुने बाह्य परिवर्तन मानिन्छ । यसरी भाषामा आन्तरिक र बाह्य कारणले के कति परिवर्तन भयो त्यसको अध्ययन ऐतिहासिक भाषाविज्ञानमा गरिन्छ ।

कालिक अध्ययन : ऐतिहासिक भाषाविज्ञानले काल वा समयलाई आधार मानेर भाषाको कालिक अध्ययन गर्दछ । दुई वा दुईभन्दा बढी समय बिन्दुलाई आधार मानेर भाषिक परिवर्तनको अध्ययन ऐतिहासिक भाषाविज्ञानले गर्दछ । यसले दुई कालिक समयमा भाषिक स्वरूपमा भएको विभिन्नतालाई समेत अध्ययन गर्दछ । दुई वा दुईभन्दा बढी समयमा भाषामा भएको परिवर्तनलाई यसमा अध्ययन गरिन्छ । कुनै पनि भाषा प्राथमिक कालमा के थियो, माध्यमिक कालमा के भयो र आधुनिक कालमा के

छ ? भन्ने अध्ययन ऐतिहासिक भाषाविज्ञानले गर्दछ । समयको परिवर्तनसँगसँगै भाषामा पनि परिवर्तन हुँदै जान्छ । समयको अन्तरालले भाषामा रहेका ध्वनि, वर्ण, व्याकरण, र अर्थ व्यवस्थामा भिन्नता आउँछ । नेपाली साहित्यको प्राथमिक, माध्यमिक र आधुनिक कालमा प्रयोग गरिने नेपाली भाषामा भिन्नता पाइन्छ । यसरी समयको अन्तरालले भाषामा के कति भिन्नता भयो त्यसको खोजी ऐतिहासिक भाषाविज्ञानमा गरिन्छ ।

स्थानिक अध्ययन : ऐतिहासिक भाषाविज्ञानले भाषाको स्थानिक अध्ययन गर्दछ । यस अध्ययनलाई भाषाभूगोल वा भाषा वंशविज्ञान पनि भनिन्छ । यसमा ठाउँको आधारमा भाषाको अध्ययन गरिन्छ । भाषाको कुनै दुई वा दुईभन्दा बढी ठाउँको स्थानिक अध्ययन गरेर विश्लेषण गर्न सकिन्छ । नेपालको सुदूरपश्चिम प्रदेशमा पर्ने डोटी, डडेल्धुरामा बोलिने नेपाली भाषा र पूर्वी नेपाल तथा दार्जिलिङमा बोलिने नेपाली भाषामा भिन्नता पाइन्छ । सीमा रेखा, सुगमता, दुर्गमता, सामाजिक, सांस्कृतिक एकरूपता, अने करूपता, बसाइँसराइ आदि विभिन्न कारणले भाषाको स्वरूपमा विविधता देखा पर्दछ । एउटै भाषालाई क्षेत्रगत आधारमा अलग किसिमले के कसरी प्रयोग गरिएको छ त्यसको खोजी ऐतिहासिक भाषाविज्ञानको स्थानिक अध्ययनमा गरिन्छ । 'खाजा' शब्दलाई ठाउँअनुसार अर्नी, चमेना, नास्ता, जलपान आदिको प्रयोग गरिएको पाइन्छ । ठाउँअनुसार नेपालको पश्चिमी पहाडी भागमा अर्नी र अन्य भागमा 'खाजा' भन्ने गरिन्छ । ठाउँअनुसार भाषाको उच्चारण व्यवस्था, शब्दभण्डार, वाक्य गठन र अर्थ व्यवस्थामा भिन्नता देखिन्छ । राजनीतिक सीमा रेखाले वक्ताहरूको मनोविज्ञान, सामाजिक, सांस्कृतिक पृष्ठभूमि, भाषिक स्रोत आदिमा भिन्नता हुन्छ । पश्चिम नेपालको दार्चुला, डडेल्धुरामा बोलिने नेपाली भाषा र भारतको धार्चुला, कुमाउ, गढवाल आदिमा बोलिने नेपाली भाषामा भिन्नता पाइन्छ । यसरी ठाउँअनुसार के कसरी परिवर्तन भयो त्यसको खोजी ऐतिहासिक भाषाविज्ञानले गर्दछ ।

पुनर्निर्माणको अध्ययन : भाषाको ऐतिहासिक अध्ययन गर्दा भाषा सङ्ख्या, परिवर्तन, उत्पत्ति, कालिक, स्थानिक आदि विभिन्न आधारमा अध्ययन गर्न सकिन्छ । भाषा के कसरी परिवर्तन हुँदै वर्तमान स्वरूपमा आइपुगेको छ ? त्यसको प्राचीन स्वरूप के कस्तो थियो ? त्यसको खोजी गर्ने काम भाषाको ऐतिहासिक अध्ययन पद्धतिमा गरिन्छ । पुनर्निर्माण भाषाको ऐतिहासिक अध्ययन गर्ने महत्त्वपूर्ण पद्धति मानिन्छ । भाषाको प्राचीन लेख्य रूप नपाउँदा वा लेख्य रूप लुप्त भएको खण्डमा सो प्राचीन रूप (ध्वनि, शब्द, व्याकरण आदि) को खोजी गर्नु अर्थात् निर्माण गर्नु नै पुनर्निर्माण हो (शर्मा र लुइटेल् २०६४, पृ. २३२) । भाषाको प्राचीन स्वरूप पत्ता लगाउन लिपिबद्ध सामग्रीको आवश्यकता पर्दछ । लिपिबद्ध सामग्री सबै भाषामा प्राप्त गर्न सकिँदैन । वर्तमान भाषाको अध्ययन विश्लेषण गरी अनुमानका आधारमा भाषाको प्राचीन स्वरूपको खोजी गरिने अध्ययन पद्धतिलाई पुनर्निर्माण भनिन्छ । पुनर्निर्माण वास्तविक नभएर अनुमान र अन्दाजका आधारमा गरिन्छ ।

भाषाको प्राचीन ध्वनि, वर्ण, शब्द र व्याकरण प्राप्त नहुँदा तुलनात्मक पद्धतिका आधारमा भाषाको पुनर्निर्माण गरिन्छ । भाषाको एक पक्ष पत्ता लागे पनि त्यसको गहन अध्ययनका लागि अन्य पक्षको खोजी गर्न, मूल स्रोत पहिचान गर्न, पारिवारिक स्थिति पहिचान गरी निष्कर्षमा पुग्न भाषाको पुनर्निर्माण गरिन्छ । पारिवारिक दृष्टिले आपसमा सम्बद्ध भाषाहरूको शब्द, रूप, ध्वनि तथा वाक्य निर्माणका नियम

आदिको ऐतिहासिक अध्ययनका आधारमा मूल भाषाको ध्वनि, शब्द, रूप आदिको पत्ता लगाउनु पुनर्निर्माण हो (तिवारी, सन् २००६, पृ. ४३४) । संस्कृत, फारसी, ग्रीसेली, ल्याटिन आदि भाषाहरूको ऐतिहासिक आधारमा पुनर्निर्माण गरिएको पाइन्छ । भाषाको ऐतिहासिक पद्धतिका सहायताले पुरानो ध्वनि, रूप, शब्द, वाक्य, व्याकरणिक कोटि आदिको पुनर्निर्माण गर्न सकिन्छ । पुनर्निर्माण प्रक्रियाले भाषाहरूको पारिवारिक साइनोलाई विश्वसनीय तुल्याउन र तिनका वक्ताहरूको इतिहास, संस्कृति, सभ्यता, आदिका विशेषता ठम्याउन ठुलो सहयोग पुऱ्याएको छ (गिरी, २०११, पृ. ७८) ।

भाषाको प्राचीन रूप नपाइँदा वा लेख्य रूप लुप्त भएका खण्डमा सो प्राचीन रूप, ध्वनि, शब्द, व्याकरण आदिको खोजी गर्नु अर्थात् निर्माण गर्नु नै पुनर्निर्माण हो (शर्मा र लुइटेल्, २०६४, पृ. २३२) । पुनर्निर्माण तुलनात्मक पद्धतिमा आधारित रहेको छ । तुलनात्मक पद्धतिका दुई तरिकामा तुलनात्मक पुनर्निर्माण र आन्तरिक पुनर्निर्माण रहेका छन् (गौतम, ओझा र सुवेदी, २०६७, पृ. २८८) । तुलनात्मक पुनर्निर्माणलाई बाह्य पुनर्निर्माण पनि भनिन्छ । पुनर्निर्माणलाई शर्मा र लुइटेल् (२०६४) ले आन्तरिक पुनर्निर्माण र बाह्य पुनर्निर्माण गरी दुई प्रकारमा विभाजन गरेका छन् (पृ. २३३) । पुनर्निर्माण गरिएका शब्दलाई ताराङ्कित यस्तो (★) चिह्नले सङ्केत गरिन्छ । भाषाको प्राचीन अवशेष खोजी गरी त्यसको वर्तमान भाषामा के कति प्रभाव पारेको छ त्यसको अध्ययन विश्लेषण गरी भाषाको पुनर्निर्माण गरिन्छ । पुनर्निर्माण आन्तरिक र बाह्य वा तुलनात्मक गरी दुई प्रकारमा विभाजन गरिन्छ ।

एउटै भाषाको प्राचीन ध्वनि, वर्ण, रूप, शब्द, वाक्य, अर्थ, व्याकरण आदि पूर्ववर्ती रूपको खोजी गरी पुनर्निर्माण गरिन्छ भने त्यसलाई आन्तरिक पुनर्निर्माण भनिन्छ । जब हामी एउटै भाषाको इतिहास पत्ता लगाउन त्यस भाषाका पूर्ववर्ती रूपको पुनर्निर्माण गछौं त्यसलाई आन्तरिक पुनर्निर्माण भनिन्छ (बन्धु, २०४८, पृ. १३८) । नेपाली भाषाको पुनर्निर्माण गर्नुपरेमा यसको पूर्ववर्ती रूप खस भाषाको तुलनात्मक अध्ययन गरिन्छ । पुरानो लिखित रूप नभएको कुनै एक भाषाका लुप्त रूपको निर्माण गर्नु आन्तरिक पुनर्निर्माण हो (शर्मा र लुइटेल्, २०६४, पृ. २३३) । यसबाट कुनै एक भाषाको विगतको भाषिक रूपको अनुमान गर्न सकिन्छ । यसरी एउटै भाषाको आन्तरिक पुनर्निर्माणबाट भाषाको वास्तविक स्थिति प्राप्त गर्न कठिन हुन्छ ।

दुई वा दुईभन्दा बढी भाषाका ध्वनि, वर्ण, रूप, शब्द, वाक्य, अर्थ, व्याकरण आदि पक्षको तुलना गरिन्छ भने त्यसलाई बाह्य पुनर्निर्माण भनिन्छ । दुई वा दुईभन्दा बढी परस्पर समान अर्थात् सजातीय भाषाहरूको प्राप्त रूपका आधारमा तुलनात्मक पद्धतिबाट तिनका मूल भाषा वा साभा भाषाका प्राचीन रूपको खोजीलाई बाह्य पुनर्निर्माण भनिन्छ (शर्मा र लुइटेल्, २०६४, पृ. २३३) । बाह्य पुनर्निर्माणलाई तुलनात्मक पुनर्निर्माण पनि भनिन्छ । जब हामी कुनै दुईभन्दा बढी भाषा वा भाषिकाको बिचमा तुलना गरेर तिनका मूल रूपको पुनर्निर्माण गछौं त्यसलाई तुलनात्मक पुनर्निर्माण भनिन्छ (बन्धु, २०४८, पृ. १३८) । यसबाट दुई वा दुईभन्दा बढी भाषाको तुलनात्मक पुनर्निर्माणले भाषाको इतिहास, भाषाहरूबिचको सम्बन्ध, पारिवारिक स्थिति पत्ता लगाउन सकिन्छ ।

नेपाली भाषाको ऐतिहासिक अध्ययन

नेपाली भाषाको ऐतिहासिक अध्ययन गर्ने सन्दर्भमा भाषाको पहिचान, उत्पत्ति, विकास, स्थानिक, भाषिक परिवर्तनका कारण, पारिवारिक वर्गीकरणगरिएको पाइन्छ। नेपाली भाषाको ऐतिहासिक सम्बन्ध भारोपेली परिवारसँग रहेको छ। संसारका विभिन्न भाषा परिवारमध्ये भारोपेली परिवार सर्वाधिक महत्त्वपूर्ण र विकसित मानिन्छ। भारतेली र युरोपेली दुई शब्दको सङ्क्षिप्त रूप भारोपेली हो। भौगोलिक आधारमा पूर्वमा भारतीय उपमहाद्विपदेखि पश्चिममा युरोपसम्म बोलिने भाषाहरू यसअन्तर्गत पर्दछन्। मूल भारोपेली भाषालाई ध्वनिका आधारमा सतम् र केन्तुम् गरी दुई वर्गमा विभाजन गरिन्छ। सय सङ्ख्यालाई उच्चारण गर्दा सुरुमा श/ज हुन्छ त्यसलाई सतम् र क/ह उच्चारण भएमा त्यसलाई केन्तुम् वर्गमा विभाजन गरिन्छ। नेपाली भाषाको ऐतिहासिक सम्बन्ध भारोपेली परिवारको सतम् वर्गसँग रहेको छ। सतम् वर्गको भारत इरानेली शाखालाई इरानेली, दरदेली र भारतेली तीन वर्गमा विभाजन गरिन्छ। नेपाली भाषाको सम्बन्ध भारतेली आर्य वा संस्कृत भाषासँग रहेको छ। आर्य वा संस्कृत भाषालाई प्राचीन, मध्ययुगीन र आधुनिक गरी तीन कालमा विभाजन गरिन्छ। यो विभाजन ऐतिहासिक भाषाविज्ञानको कालिक अध्ययन क्षेत्रअन्तर्गत पर्दछ।

ऐतिहासिक अध्ययन पद्धतिका आधारमा नेपाली भाषाको उत्पत्तिका सम्बन्धमा विद्वान्हरूको मत एउटै हुन सकेको छैन। नेपाली भाषाको उत्पत्तिका सम्बन्धमा विद्वान्हरूको मतमतान्तरलाई यहाँ प्रस्तुत गरिएको छ। नेपाली भाषाको उत्पत्तिका बारेमा ऐतिहासिक चर्चा गर्ने प्रथम विदेशी विद्वान् होर्नले हुन्। उनले 'नेपाली भाषाको उत्पत्ति' (सन् १८८०) ग्रन्थमा आर्यभाषा अन्तर्गत पूर्वी, पश्चिमी, उत्तरी र दक्षिणी गौडी गरी चार भेदमा बाढेका छन्। यी चार भेदमध्ये उत्तरी गौडीअन्तर्गत नेपाली, गढवाली र कुमाउनी भाषाको उत्पत्ति भएको हो भन्ने तर्क होर्नलेको रहेको छ। जर्ज अब्राहम ग्रियर्सनका विचारमा शौरसेनी प्राकृतबाट अपभ्रंश भई राजस्थानी भाषाको विकास भएको हो। राजस्थानी भाषासँग नेपाली भाषाको सम्बन्ध निकट रहेको छ। सुनीतिकुमार चटर्जीले 'बङ्गाली भाषाको उत्पत्ति र विकास' (सन् १९१६) ग्रन्थमा खस भाषाको उत्तर पश्चिमी पहाडी हाँगाबाट नेपाली भाषाको उत्पत्ति भएको हो भन्ने तर्क अघि सारेका छन्। राल्फ लिली टर्नरले 'नेपाली भाषाको मूल' (सन् १९५६) पुस्तकमा नेपाली भाषाको उत्पत्ति मागधी प्राकृत हुँदै त्यसको अपभ्रंश भाषाबाट भएको हो भन्ने विचार प्रस्तुत गरेका छन्। सूर्यविक्रम ज्ञवालीले नेपाली भाषा संस्कृतबाट विकसित भई शौरसेनी प्राकृतअन्तर्गत भएको हो भन्ने तर्क अघि सारेका छन्। भाषाविद् बालकृष्ण पोखरेलले 'राष्ट्रभाषा' (२०२२) मा नेपाली भाषा शौरसेनी प्राकृतबाट उत्पत्ति भएको माने तापनि उनको पछिल्लो अध्ययन 'नेपाली भाषाको उत्पत्ति' (२०४७) ले खस अपभ्रंशबाट नेपाली भाषाको उत्पत्ति भएको बताएका छन्। तारानाथ शर्माले 'नेपाली साहित्यको इतिहास' (२०३९) पुस्तकमा भारोपेली परिवारको संस्कृतको विभिन्न प्राकृतमध्ये कुनै एकबाट नेपाली भाषाको उत्पत्ति भएको हो भन्ने विचार राखेका छन्। भाषाशास्त्री चूडामणि बन्धुले 'नेपाली भाषाको उत्पत्ति' (२०३६) पुस्तकमा नेपाली भाषा हिमाली भेगअन्तर्गत खसवर्गबाट विकसित भएको खस अपभ्रंशबाट नेपाली भाषाको उत्पत्ति भएको हो भन्ने विचार राखेका छन्। मोहनराज शर्मा र कृष्णहरि बरालले एउटा आधुनिक आर्य भाषाका रूपमा नेपाली भाषाको उद्भव खस अपभ्रंशबाट एघारौँ शताब्दीतिर भएको हो भन्ने तर्क प्रस्तुत गरेका

छन् । खस प्राकृत र त्यसैबाट अपभ्रंश भाषाबाट नेपाली भाषाको उत्पत्ति भएको हो भन्ने विचार देवीप्रसाद गौतमको रहेको छ । प्रस्तुत अध्ययन भाषाको ऐतिहासिक पद्धतिमा आधारित छन् ।

नेपाली भाषाको उद्भव

ऐतिहासिक भाषाविज्ञानले भाषाको उद्भवको अध्ययन गर्दछ । नेपाली भाषाको उद्भव पहिचान गर्ने क्रममा ध्वनिलाई आधार मानिएको छ । भारोपेली परिवारलाई ध्वनिका आधारमा सतम् र केन्तुम्\ गरी दुई वर्गमा विभाजन गरिन्छ । सतम् वर्गमा पर्ने भारत इरानेली शाखालाई इरानेली, दरदेली र भारतेली तीन वर्गमा विभाजन गरिन्छ । नेपाली भाषाको ऐतिहासिक सम्बन्ध भारतेली आर्य वा संस्कृत भाषासँग रहेको छ । आर्य वा संस्कृत भाषालाई प्राचीन, मध्ययुगीन र आधुनिक गरी तीन कालमा विभाजन गरिन्छ । प्राचीन आर्य भाषाबाट वैदिक र लौकिक संस्कृत, मध्ययुगीन आर्यबाट प्रथम, द्वितीय र तृतीय प्राकृत भाषाको जन्म भएको मानिन्छ । प्रथम भाषाबाट पाली तथा द्वितीय र तृतीय प्राकृत भाषाबाट शौरसेनी, पैसाची, महाराष्ट्री, अर्ध मागधी, मागधी र खस भाषाको जन्म हुन पुग्दछ । तृतीय प्राकृतबाट विभिन्न अपभ्रंश भाषाको जन्म हुन्छ । यी विभिन्न प्राकृतमध्ये खस प्राकृतअन्तर्गत खस अपभ्रंशबाट नेपाली भाषाको उत्पत्ति एघारौँ शताब्दीमा भएको मानिन्छ । नेपाली भाषाको उत्पत्तिका विषयमा मतमतान्तर भए पनि खस प्राकृतबाट अपभ्रंश हुँदै नेपाली भाषाको उत्पत्ति भएको हो भन्ने अधिकांश विद्वान्हरूको मत रहेको छ । नेपाली भाषाको उद्भव प्रक्रियाको ऐतिहासिक विकास क्रमलाई यहाँ प्रस्तुत गरिएको छ । खतिवडा (२०७५) का विचारमा भारोपेली परिवारको सतम्वर्ग > भारत इरानेली > भारतेली आर्य संस्कृत (ई.पू.१५००-५००) > मध्यकालीन आर्य (ई.पू.५००-१०००) > प्राकृत (ई.पू.५०० देखि ई.पू.५००) > अपभ्रंश ई.पू.५००- ई.पू.१००० > नेपाली (ई.पू. १०००) हुँदै एघारौँ शताब्दीको प्रारम्भमा नेपाली भाषाको उत्पत्ति भएको मानिन्छ (पृ. ३) ।

नेपाली भाषाको विकास

ऐतिहासिक भाषाविज्ञानले भाषाको विकासको अध्ययन गर्दछ । नेपाली भाषाको पुरानो स्वरूप कस्तो थियो ? र पुरानो भाषिक स्वरूपबाट नयाँ स्वरूपमा आउँदा के कति परिवर्तन भयो त्यसको खोजी गरेको छ । यात्री (२०३९) का विचारमा एघारौँ शताब्दीमा उत्पत्ति भएको नेपाली भाषा समय सापेक्ष परिवर्तन हुँदै हालको अवस्थामम्म आई पुगेको छ (पृ.१२२) । विकासको गतिसँगै नेपाली भाषा खस, पर्वते, गोर्खाली हुँदै नेपाली भाषासम्म आइपुगेको छ । एघारौँ शताब्दीतिर जन्मिएको नेपाली भाषाको प्राचीनतम ऐतिहासिक अभिलेखहरू खोज र अनुसन्धानका विषय बनेका छन् । नेपाली भाषाको उत्पत्तिका विषयमा मतमतान्तर भए पनि खस प्राकृतबाट अपभ्रंश हुँदै नेपाली भाषाको उत्पत्ति भएको हो भन्ने अधिकांश विद्वान्हरूको मत रहेको छ । ऐतिहासिक तथ्यका आधारमा खस राज्यको स्थापना गर्ने नागराज हुन् । उनले कर्णालीको सिँजालाई शीतकालीन राजधानी र दुल्लुलाई ग्रीष्मकालीन राजधानी बनाई खस राज्यको स्थापना गरेपश्चात् खस भाषालाई राज भाषा बनाए । छैटौँ नागराज अशोक चल्लको १३१२ को हुम्लाको रेलिङ्ग, गुम्बामा पाइएको प्रशासनिक ताम्रपत्रलाई हालसम्मकै प्राचीनतम ऐतिहासिक अभिलेख मानिन्छ । यात्री (२०४९) का विचारमा खोज गरी पत्ता लगाउने योगी नरहरि नाथ, जानकारी दिने मोहनप्रसाद खनाल र पूर्णपाठ पढी तयार पार्ने सूर्यमणि अधिकारी हुन् (पृ. ४३ - ४६) । यसको खोजी ऐतिहासिक भाषाविज्ञानको ऐतिहासिक कालिक अध्ययन क्षेत्रमा गर्न सकिन्छ ।

नेपाली भाषाको प्रारम्भिक पछिल्लो खोजअनुसार पूर्णप्रकाश नेपाल यात्री र योगी नरहरि नाथले वि. सं. १०३८ को दामुपालको दुल्लु अभिलेखलाई अधि सारिएको छ (शर्मा र बराल, २०५५, पृ. २३) । यो अभिलेख प्रमाणित हुन सकेमा नेपाली भाषाको इतिहास अझ लम्बिने देखिन्छ । यस अभिलेखलाई योगी नरहरि नाथले २०१३ मा र पूर्णप्रकाश नेपाल यात्रीले २०३९ मा प्रकाशित गरेका हुन् । तर दुवैको पठन फरक भएकाले आधिकारिक रूपमा प्रमाणिक हुन सकेको छैन । नेपाली भाषाको उत्पत्तिका सम्बन्धमा मत मतान्तर भएजस्तै नेपाली भाषाको ऐतिहासिक विकासक्रममा पनि विद्वान्हरू बिचमा एकमत हुन सकेको छैन । केही विद्वान्हरूले प्राथमिक, माध्यमिक र आधुनिक कालमा विभाजन गरी एघारौँ शताब्दीदेखि पन्ध्रौँ शताब्दीसम्म प्राथमिक काल, सोह्रौँदेखि उन्नाइसौँ शताब्दीसम्म माध्यमिक काल र बिसौँ शताब्दीदेखि हालसम्म आधुनिक काल मानेका छन् । नेपाली भाषा खस प्राकृतको अपभ्रंशबाट उत्पत्ति भएको आधारमा एघारौँ शताब्दीमा खस राज्यको स्थापनादेखि त्यसको विघटनसम्मलाई प्राथमिक काल मानिन्छ । बाइसे, चौबिसे राज्यको स्थापनादेखि गोरखापत्रको प्रकाशनसम्मलाई माध्यमिक काल र गोरखापत्र प्रकाशनपछि हालसम्मलाई आधुनिक काल गरी नेपाली भाषाको ऐतिहासिक समय सीमा निर्धारण गर्न सकिन्छ ।

ऐतिहासिक भाषाविज्ञानका उपलब्धिहरू

भाषाको उत्पत्ति, विकास परिवर्तन के कसरी भएको छ त्यसको खोजी ऐतिहासिक भाषाविज्ञानले गर्दछ । भाषिक अध्ययनको स्पष्ट आधार तयार पार्नु र भाषाशास्त्र र व्याकरणलाई भाषाविज्ञानका रूपमा अध्ययन गर्नु ऐतिहासिक भाषाविज्ञानको उपलब्धि मानिन्छ । भाषाविज्ञानलाई अलग्गै विधाका रूपमा स्वीकार गरेर यसको पाठ्यक्रम निर्माण गरी विश्वविद्यालयमा पठनपाठन भएको छ । ऐतिहासिक भाषाविज्ञानको अध्ययनसँगसँगै विश्वका भाषाको अध्ययन गरी सङ्ख्या निर्धारण गरिएको छ । ऐतिहासिक भाषाविज्ञानले संसारका भाषाको पारिवारिक, प्रकार्यपरक र भौगोलिक अध्ययन गरेको छ । यस भाषाविज्ञानले विभिन्न ऐतिहासिक ग्रन्थको अनुवाद गरेर पूर्वीय र पाश्चात्य भाषाको विकास परम्परामा योगदान गरेको छ । लोप हुँदै गएका भाषा र लिपिको खोजी गर्नु, भाषा र भाषिका विचको अन्तरको पहिचान गर्नु, भाषालाई विज्ञानको रूपमा स्थापित गरी एउटा निष्कर्ष निकाल्नु ऐतिहासिक भाषाविज्ञानको उपलब्धि मानिन्छ । भाषा कसरी परिवर्तन र विकसित हुँदै आएको छ, त्यसको एक भाषिक, अनेक भाषिक, कालिक, स्थानिक र आन्तरिक र बाह्य पुनर्निर्माणको अध्ययन विश्लेषण गर्नु ऐतिहासिक भाषाविज्ञानको उपलब्धि मानिन्छ ।

निष्कर्ष

ऐतिहासिक भाषाविज्ञानले भाषाको उद्भव, विकास, परिवर्तनका साथै त्यसका विविध पक्षको विश्लेषण गर्दछ । कालक्रमिक रूपमा अध्ययन गरिने हुँदा यसमा तुलनात्मक पद्धतिको समेत प्रयोग गरिन्छ । कुनै भाषाको उत्पत्तिदेखि वर्तमानसम्मको कालक्रमिक अध्ययन गर्ने हुँदा यसमा भाषाको इतिहासको अध्ययन गरिन्छ । ऐतिहासिक भाषाविज्ञान वर्णनात्मक तथा तुलनात्मक भाषाविज्ञानभन्दा पुरानो मानिन्छ । भाषाको विकास, परिवर्तन, कालक्रम, उद्भव आदि पक्षको अध्ययन गरी इतिहास निर्धारण गर्ने काम ऐतिहासिक भाषाविज्ञानले गर्दछ । भाषाको पुरानो स्वरूप कस्तो थियो ? र पुरानो भाषिक स्वरूपबाट नयाँ स्वरूपमा आउँदा के कति परिवर्तन भयो त्यसको खोजी ऐतिहासिक भाषाविज्ञानले गर्दछ । नेपाली भाषाको ऐतिहासिक अध्ययन गर्ने सन्दर्भमा भाषाको पहिचान, उत्पत्ति, विकास, स्थानिक,

भाषिक परिवर्तनका कारण, पारिवारिक वर्गीकरण गरिएको पाइन्छ । ऐतिहासिक भाषाविज्ञानले विभिन्न ऐतिहासिक ग्रन्थको अनुवाद गर्ने, पूर्वीय र पाश्चात्य भाषाको विकास परम्पराको चिन्तन गर्दै आएको छ । लोप हुँदै गएका भाषा र लिपिको खोजी गर्ने, भाषा र भाषिकाबिचको अन्तरको पहिचान गर्ने र ऐतिहासिक अध्ययन पद्धतिका आधारमा भाषालाई विज्ञानको रूपमा स्थापित गरेको छ । यसरी कुनै पनि भाषाको विभिन्न कालमा भएको परिवर्तनलाई अध्ययन गरी सिद्धान्त निर्माण गर्ने काम ऐतिहासिक भाषाविज्ञानले गर्दछ ।

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वैदिक र लौकिक वाङ्मयमा भाषिक चिन्तन

कमप्रसाद देवकोटा

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लेखसार

प्रस्तुत 'वैदिक र लौकिक वाङ्मयमा भाषिक चिन्तन' शीर्षकको अनुसन्धानात्मक लेखको अध्ययन क्षेत्र वैदिक र लौकिक संस्कृतमा विकसित भाषिक चिन्तन परम्परा हो । यो लेख वैदिक र लौकिक वाङ्मयमा के कस्ता भाषिक चिन्तनहरू भएका छन् ? यी वाङ्मयमा भएका भाषिक चिन्तनहरूबिच के कस्ता समानता र भिन्नताहरू रहेका छन् ? आदि प्राज्ञिक समस्यामा केन्द्रित रहेको छ । यसमा वैदिक भाषिक परम्परालाई सुदृढ बनाउने वैदिक संहिता, वेदको व्याख्या गर्न रचित ब्राह्मण, आरण्यक, उपनिषद्हरू, वेदाङ्ग, प्रातिशाख्य तथा शिक्षा ग्रन्थ जस्ता वैदिक कालका रचनाहरू तथा लौकिक वाङ्मयअन्तर्गत पर्ने पाणिनिपूर्वका भाषिक चिन्तनहरू, पाणिनिकालका त्रिमुनि आचार्यहरूका व्याकरणिक कार्यहरू तथा पाणिनि उत्तरयुगमा भएगरेका विभिन्न आचार्यहरूका चिन्तनहरूसमेतलाई समेटिएको छ । यसमा वैदिक वाङ्मयहरूमा उल्लिखित ध्वनि, अक्षर, शब्द व्युत्पत्ति, शब्दवर्ग, धातु, प्रातिपदिक जस्ता विषयहरू तथा लौकिक वाङ्मयहरूमा प्रकृति प्रत्ययको कल्पना, भाषाका चार अवस्था परा, पश्यन्ती, मध्यमा र वैखरीको निरूपण, शब्दवर्गको स्थापना, शब्दार्थ सम्बन्ध, शब्दको श लेखन, शब्द व्युत्पत्ति चेत, उच्चारणसम्बन्धी धारणा, स्फोटको कल्पना जस्ता भाषिक अवस्थाको खोजी गरिएको छ । यस लेखलाई तयार गर्न गुणात्मक ढाँचाअन्तर्गतको वर्णनात्मक पद्धतिको अवलम्बन गरिएको छ । पूर्वीय वाङ्मयसम्बन्धी अध्ययनका सामग्रीहरूलाई द्वितीयक स्रोतका रूपमा प्रयोग गरी आवश्यक व्याख्या विश्लेषणसहित निष्कर्ष निकालिएको छ । आधुनिक नेपाली व्याकरणमा प्रयुक्त शब्द व्युत्पत्ति, प्रकृति प्रत्यय, धातु, शब्दवर्ग, कारक, विभक्तिको विकास संस्कृत व्याकरणबाट भएको देखिन्छ ।

शब्दकुञ्जी : ऐन्द्र सम्प्रदाय, धातुज, प्रातिशाख्य, माहेश्वर सूत्र, वेदाङ्ग, वैदिक संहिता

परिचय

भाषा विचार विनिमयको साधन हो । मानिस आफ्ना विचार, अनुभूति, सन्तुष्टि, असन्तुष्टि सबै कुराहरू भाषाबाटै अभिव्यक्त गर्दछ । जब मानिस अस्तित्वमा आयो भाषा पनि सँगै ल्याएर आएको

हुनुपर्दछ । भाषाको जन्म मानवीय आवश्यकताले हुन्छ । मान्छेले आदिकालदेखि प्रयोग गर्दै आएको भाषाको अध्ययन गर्ने परिपाटीको सुरुवात वैदिक कालबाटै भएको पाइन्छ । वैदिक कालको पनि सर्वप्राचीन ग्रन्थ ऋग्वेदबाटै यससम्बन्धी चिन्तन मनन प्रक्रियाको सुरुवात भएको पाइन्छ । ऋग्वेदका साथै अन्य वेदहरूमा पनि भाषासम्बन्धी प्रसङ्गानुकूल चर्चाहरू भएको पाइन्छ । यसरी वैदिक युगका ब्राह्मण ग्रन्थ, आरण्यक, उपनिषद् तथा वेदाङ्गहरूमा पनि भाषा प्रयोगव्यवहारसम्बन्धी विचारहरू आएका देखिन्छन् । लौकिक परम्परामा आएर भाषाको चिन्तन भाषिक नियमहरूको प्रार्दुभाव गर्ने चरणमा विकास भएको पाइन्छ । यही क्रममा विभिन्न आचार्यहरूले आफ्ना भाषा व्याकरणसम्बन्धी चिन्तनमनन गरेका छन् । पाणिनि व्याकरण परम्पराले सबै पूर्वभाषिक चिन्तनलाई निश्चित दिशा प्रदान गरेको छ । यसको आगमनले व्याकरण लेखन परम्परामा नौला आयामको विकास भएको छ । यसको प्रभाव पाश्चात्य भाषिक चिन्तनमा समेत पयो । आधुनिक भाषाविज्ञानका शाखाहरू रूपविज्ञान, वर्णविज्ञान, वाक्यविज्ञान तथा अर्थविज्ञान पाणिनीय व्याकरणकै विकसित रूप हुन् । यसरी भाषा चिन्तनमा कुन कुन विद्वान्हरूले के कस्तो योगदान गरे ? आधुनिक भाषाविज्ञानलाई कसरी थप विकास गर्न सकिन्छ ? भन्ने प्रसङ्गमा भाषासम्बन्धी भएगरेका वैदिक तथा लौकिक चिन्तन परम्पराको खोजी आवश्यक विषय हो । यससम्बन्धी आवश्यकतालाई मध्यनजर गरी प्रस्तुत अध्ययन कार्य थालिएको हो । वैदिक र लौकिक भाषिक चिन्तन परम्पराको ऐतिहासिकता अध्ययन गर्ने काम प्रस्तुत रचनामा भएको छ । वैदिक र लौकिक वाङ्मयमा केकस्ता भाषिक चिन्तनहरू भएका छन् ? यी वाङ्मयमा भएका भाषिक चिन्तनहरूबिच केकस्ता समानता र भिन्नताहरू रहेका छन् ? आदि समस्यामा प्रस्तुत अनुसन्धानात्मक लेख केन्द्रित रहेको छ । पूर्वीय भाषिक चिन्तन परम्परा अध्ययन गर्नु व्यापक विषय क्षेत्र हो । यसको सम्पूर्ण पक्षको अध्ययन पूरा गर्न समय तथा उच्च बौद्धिक क्षमताको आवश्यकता पर्न सक्छ । यस लेखको उद्देश्य सापेक्षित हुने गरी वैदिक भाषिक चिन्तन तथा लौकिक भाषिक चिन्तनअन्तर्गत पाणिनि व्याकरण, मुनित्रय व्याकरण परम्परा, पाणिनिउत्तरका वैयाकरणहरूको व्याकरणसम्बन्धी योगदानको बारे सङ्क्षिप्त अध्ययन गर्ने गरी सीमाङ्कन गरिएको छ ।

अध्ययन विधि

प्रस्तुत अनुसन्धानात्मक आलेख तयार पार्ने क्रममा गुणात्मक अनुसन्धान ढाँचाअन्तर्गत वर्णनात्मक पद्धतिलाई अवलम्बन गरिएको छ । सामग्री सङ्कलन द्वितीयक स्रोतअन्तर्गत पुस्तकालय अध्ययन कार्यबाट गरिएको छ । प्रस्तुत लेखको दावीलाई पुष्टि गर्नका लागि विभिन्न विद्वान्हरूद्वारा प्रतिपादित पूर्ववर्ती सामग्रीहरूमा आधारित भई विमर्श गरिएको छ । यस अध्ययनका लागि पूर्वीय वाङ्मयका महत्त्वपूर्ण ग्रन्थहरूलाई ज्ञानको स्रोत मानिएको छ । उपयुक्त साक्ष्य र प्रमाणका आधारमा विश्लेषण गरी निष्कर्षमा पुगिएको छ ।

नतिजा र छलफल

वैदिक भाषिक चिन्तन

वैदिक भाषिक चिन्तनअन्तर्गत वैदिक संहिता, ब्राह्मण ग्रन्थ, आरण्यक, उपनिषद्, वेदाङ्ग, प्रातिशाख्य, शिक्षाग्रन्थ, निघण्टु, निरुक्त जस्ता वैदिक ग्रन्थहरूमा प्रयुक्त भाषिक चिन्तनहरूलाई समेटिएको छ ।

वैदिक संहितामा भाषिक चिन्तन

वैदिक संहिता भनेका विभिन्न देवताहरूको स्तुति गरिएका मन्त्रहरूका सङ्ग्रह हुन् । ऋक्, यजुष, साम र अथर्व गरी वैदिक संहिताहरू चार प्रकारका छन् । यी चार संहिताहरूमा भाषासम्बन्धी महत्त्वपूर्ण चिन्तन गरिएको पाइन्छ । पूर्वीय जगत्मा वैदिक भाषिक चिन्तन र लौकिक भाषिक चिन्तन गरी भाषिक चिन्तनको परम्परालाई दुई वर्गमा विभाजन गरी अध्ययन गरिन्छ । वैदिक भाषिक चिन्तनअन्तर्गत चार वेदहरू ऋग्वेद, सामवेद, यदुर्वेद तथा अथर्ववेदका विभिन्न ऋचाहरूमा भएका भाषा व्याकरणसम्बन्धी विचारहरू तथा वेदको व्याख्याको रूपमा देखा परेका ब्राह्मण, आरण्यक तथा उपनिषद्हरूमा आएका भाषिक चिन्तनहरू पर्दछन् (शर्मा, २०५६, पृ.५) । वेदाङ्गहरू शिक्षा, कल्प, ज्योतिष, निरुक्त, व्याकरण तथा छन्दमा भएका भाषिक चिन्तनसमेत वैदिक भाषिक चिन्तनका मुख्य सामग्रीहरू हुन् । वेदमा अनेक स्थानमा वाक्त्व, भाषाको उत्पत्ति, व्याकरण, छन्दको विश्लेषण, वाणीका भेदहरू, मनस्तत्त्व तथा वाक्त्वसम्बन्धी अक्षर, पद आदिको चर्चा गरिएको पाइन्छ (न्यौपाने र पराजुली, २०६९, पृ.१५) । वेदमा विशेष गरी अक्षर र विभक्तिको प्रयोग, वाणीको व्यापकता, चतुर्विध वाक्, भाषिक तत्त्वको विश्लेषण, अक्षर तथा पदज्ञानको महत्त्व, निर्वचनको प्रारम्भ जस्ता भाषिक पक्षहरूको चर्चा गरिएको छ (न्यौपाने र पराजुली, २०६९, पृ.१५-१७) । वेदलाई भाषिक चिन्तनको आदि ग्रन्थ मानिन्छ । यसको पृष्ठभूमिमा भाषिक चिन्तन परम्परा विकसित हुँदै गएको हो ।

ब्राह्मण ग्रन्थहरूमा भाषिक चिन्तन

वेदका व्याख्याका रूपमा देखा परेका उत्तरवैदिक कालका ब्राह्मणग्रन्थ, आरण्यक तथा उपनिषद्हरूमा पनि भाषासम्बन्धी चिन्तनहरू देखा पर्दछन् । वेदको कर्मकाण्डसम्बन्धीको टीका मानिने ब्राह्मण ग्रन्थहरूमा पनि चर्चा गरिएको छ । वेद संहिता मन्त्रको सङ्ग्रह हो भने ब्राह्मणग्रन्थ यसको प्रयोग हो (राई, २०७४, पृ.३२०) । ब्राह्मण ग्रन्थहरूले पाणिनीय व्याकरण रचनामा महत्त्वपूर्ण आधारको काम गरेको देखिन्छ । ब्राह्मण ग्रन्थहरूमा उल्लिखित भाषिक चिन्तनका अधिकांश कुरालाई व्याकरणिक सूत्रमा बाँध्ने काम पाणिनिबाट भएको हो । व्याकरणधातु, प्रातिपदिक, आख्यात, लिङ्ग, वचन, विभक्ति, प्रत्यय, स्वर, उपसर्ग, निपात, व्याकरण, विकार, मात्रा, वर्ण, अक्षर, पद, संयोग, स्थान, नाद आदि पारिभाषिक शब्दहरूको प्रयोग गोपथ ब्राह्मणमा पाइन्छ (न्यौपाने र पराजुली, २०६९, पृ.१८) । ब्राह्मण ग्रन्थहरूले वैदिक पाठलाई सहज गर्न सहयोग गरेका छन् ।

आरण्यक तथा उपनिषद् ग्रन्थहरूमा भाषिक चिन्तन

ब्राह्मण ग्रन्थहरूभन्दा केही समयपछाडि अस्तित्वमा आएका आरण्यकहरूमा पनि भाषिक व्यवहारहरू भएको पाइन्छ । आरण्यकमा भाषासम्बन्धी केही आधारहरू देख्न सकिन्छ । ऐतरेय आरण्यकका पाँच आरण्यकहरूमध्ये तृतीय आरण्यकमा संहिता, पद, क्रमपाठ, स्वर, व्यञ्जन आदिको चर्चा गरिएको छ (न्यौपाने र पराजुली, २०६९, पृ.१८) । वेदान्त दर्शनका रूपमा चिनिने उपनिषद्हरूमा पनि थुप्रै भाषिक चिन्तनहरू भएका छन् । विभिन्न उपनिषद्हरूमा भाषासम्बन्धी व्यापक चर्चा भएको नभए पनि मुन्दकोपनिषद्, केनोपनिषद्, श्वेताश्वेतरोपनिषद् आदिमा केही भाषासम्बन्धी सङ्केत गरिएको छ

(पोखरेल, २०७५, मोडुल सामग्रीबाट उद्धृत) । यसमा अक्षर (भाषा) लाई ब्रह्मसँग जोडेर व्याख्या गरिएको छ । मुन्डकोपनिषद्का अनुसार अक्षर ब्रह्मबाट यो विश्वको उत्पत्ति हुन्छ । केनोपनिषद्का अनुसार जसलाई वाणीद्वारा बताउन सकिँदैन, जसले वाणीलाई उत्पत्ति गर्दछ, त्यही ब्रह्म हो । श्वेताश्वेतरोपनिषद्का अनुसार अनन्त अक्षर ब्रह्मका विद्या र अविद्या गरी दुई रूप छन् (न्यौपाने र पराजुली, २०६९, पृ.२०) । उपनिषद्हरूमा भाषासम्बन्धी केही न केही सङ्केत गरिएको पाइन्छ ।

वेदाङ्ग कालमा भाषिक चिन्तन

षड्वेदाङ्गहरू वेदपाठमा सहजीकरण ल्याउन रचित ग्रन्थहरू हुन् । वेदलाई शरीरको रूपमा आरोपित गरी विभिन्न ज्ञानेन्द्रिय तथा कर्मेन्द्रियको रूपमा वेदाङ्गहरूलाई चिनाइएको देखिन्छ । कल्प र ज्योतिषवाहेक अन्य सबैजसो वेदाङ्गहरूमा भाषिक चिन्तन पाइन्छ । ध्वनि विज्ञानान्तर्गत पर्ने उच्चारणसम्बन्धी नियमहरूको व्याख्या गर्ने काम 'शिक्षा' मा भएको छ । पदविज्ञान र वाक्यविज्ञानको समन्वयात्मक रूपको चर्चा 'व्याकरण' मा भएको छ । 'निरुक्त' मा शब्दको निर्वचन वा व्युत्पत्तिको बारेमा व्याख्या छ भने 'छन्द' मा प्रत्येक पाठमा वर्ण र मात्राहरूका निर्धारित सङ्ख्याको वर्णन गरिएको छ (न्यौपाने र पराजुली, २०६९, पृ.२०) । वेद पाठलाई सहज गर्नका लागि वेदाङ्गको भूमिका महत्त्वपूर्ण मानिन्छ ।

प्रातिशाक्य र शिक्षाग्रन्थमा भाषिक चिन्तन

वेदको स्पष्ट उच्चारणमा समस्या परेको महसुस गरी त्यसको समाधानार्थ प्रातिशाक्य तथा शिक्षा ग्रन्थहरू व्यवहारमा आएका हुन् । प्रातिशाक्य ग्रन्थहरूमा वर्ण उच्चारणसम्बन्धी नियमको व्याख्या पाइन्छ । प्रातिशाक्यमा वैदिक सूक्तहरूको उच्चारणको शुद्धताको निर्णय गर्ने विभिन्न शाखाहरू थिए । संस्कृत भाषाका ध्वनिको वर्गीकरण गर्ने र धातुहरूलाई गणका रूपमा वर्गीकरण गर्ने काम पनि प्रातिशाक्यकारहरूले गरे (बन्धु, २०७०, पृ.१२) । शिक्षाग्रन्थहरू भाषिक ध्वनि, सुर, बलाघात, मात्रा आदिको बारेमा सिकाउने ग्रन्थहरू हुन् । प्रातिशाक्य र शिक्षाग्रन्थहरूमा मूलतः स्वर (उदात्त आदि सुरसमेत), व्यञ्जन, अन्तःस्थ, ऊष्म वर्ण र तिनीहरूका भिन्नताका आधारहरू : बल, मात्रा, साम, सन्तान, अनुनासिकता, अक्षर, यम अभिनिधान, सन्धिस्वर आदिको विश्लेषण पाइन्छ । अहिले पनि यिनै पारिभाषिक शब्द र मान्यता स्वीकृत छन् (न्यौपाने र पराजुली, २०६९, पृ.२२) । वेदका मन्त्रहरूको उच्चारणलाई नियमबद्ध गरी उच्चारणमा एकरूपता कायम गर्न प्रातिशाक्य र शिक्षाग्रन्थहरूको रचना भएको देखिन्छ । शिक्षा सामान्य ध्वनि विज्ञानसँग र प्रातिशाक्यले व्यावहारिक ध्वनि विज्ञानसँग सम्बन्ध राख्छ (आचार्य, २०७२, पृ.२७) । यी ग्रन्थहरूमा आधुनिक ध्वनिविज्ञानको आदि रूप भेट्न सकिन्छ ।

निघण्टु र निरुक्तमा भाषिक चिन्तन

पूर्वीय भाषिक परम्परामा यास्कको भूमिका पनि महत्त्वपूर्ण मानिन्छ । यास्कले 'निघण्टु' र 'निरुक्त' को रचना गरेर भाषिक पक्षमा महत्त्वपूर्ण योगदान गरेका छन् । 'निघण्टु' यास्कको वेदसम्बन्धी शब्दकोश हो । भने 'निरुक्त' व्याकरण ग्रन्थ हो । यसमा शब्दको निर्वचन प्रक्रियाको बारेमा व्याख्या गरिएको छ । 'निरुक्त' वेदाङ्गान्तर्गत पर्दछ । यज्ञादि कर्मले प्रधानता पाएको बेला वैदिक वर्णको शुद्ध उच्चारण तथा अर्थबोधसहितको पठन अनिवार्य थियो तर वैदिक भाषा अबोध्य भइसकेको थियो । वैदिक

वाङ्मयका रक्षाका निम्ति 'निघण्टु' र 'निरुक्त'को रचना भएको हो (न्यौपाने र पराजुली, २०६९, पृ. २६) । यास्क नै पहिलो व्युत्पत्तिकार हुन् जसले सबै प्रकारका शब्दहरूलाई धातुज अर्थात् धातुबाट निर्माण भएका मानेका छन् । शब्दवर्गको अवधारणाको आरम्भ पनि यास्कबाटै भएको हो । यिनले सबै शब्दलाई नाम, आख्यात, उपसर्ग र निपातको रूपमा वर्गीकरण गरेका छन् । यास्कले शब्द र अर्थको नित्य सम्बन्ध हुने कुरामा जोड दिएका छन् ।

पाणिनि व्याकरणको पृष्ठभूमि

निर्वचनकार यास्क र अष्टाध्यायीका लेखक पाणिनिका बिचमा भाषासम्बन्धी चिन्तनलाई व्याकरणको पृष्ठभूमिको रूपमा लिइन्छ । यस समयका भाषा चिन्तकहरूलाई वैयाकरणको नामले चिनिन्छ । यी वैयाकरणहरूका पृष्ठभूमिमा पाणिनिको सर्वोत्कृष्ट व्याकरणको रचना भएको मानिन्छ । ती वैयाकरणहरूका आधिकारिक व्याकरणका कृतिहरू अहिले उपलब्ध नभए पनि मुनित्रयका ग्रन्थहरूमा उल्लिखित विभिन्न प्रसङ्गको आधारमा उनीहरूको व्याकरणगत योगदानको चर्चा गर्न सकिन्छ । पाणिनिले आफ्नो अष्टाध्यायीमा विभिन्न व्याकरणिक सम्प्रदायहरूको चर्चा गरेका छन् । पाणिनिको अष्टाध्यायी, पतञ्जलीको महाभाष्य र अन्य सन्दर्भहरूमा उल्लिखित वैयाकरणहरू हुन् : आपिशलि, इन्द्र, काश्यप, वायु, गार्ग्य, भागुरि, शाकटायन, पोष्करसादि, शाकल्य, रौढि, स्फोटायन, काशकृत्स्न, भारद्वाज, शन्तनु, चक्रवर्मन, व्याडि, सेनक (न्यौपाने, भण्डारी र न्यौपाने २०६७, पृ. ४) । यस समयमा भाषासम्बन्धी महत्त्वपूर्ण चिन्तनहरू भएको देखिन्छ । प्रकृति प्रत्ययको कल्पना, भाषाका चार अवस्था परा, पश्यन्ती, मध्यमा र वैखरीको निरूपण, शब्दवर्गको स्थापना, शब्दार्थ सम्बन्ध, शब्दकोश लेखन, शब्द व्युत्पत्ति चेत, उच्चारणसम्बन्धी धारणा, स्फोटको कल्पना आदि यस समयका मुख्य उपलब्धि हुन् । जसले पाणिनीय पदव्याकरणको रचनामा आधार स्तम्भको काम गरेका छन् ।

लौकिक वाङ्मयमा भाषिक चिन्तन

लौकिक भाषिक चिन्तनअन्तर्गत पाणिनिलाई केन्द्रमा राखी उनीभन्दा पूर्ववर्ती र उत्तरवर्ती भाषिक चिन्तनलाई समेटिएको छ । पाणिनि पूर्वकालका महेश्वर सम्प्रदाय र ऐन्द्र सम्प्रदायका योगदानको चर्चा गरिएको पाइन्छ । यसमा त्रिमुनिहरू पाणिनि, कात्यायन र पतञ्जलीले पाणिनिरचित अष्टाध्यायीको केन्द्रीयतामा गरेका व्याकरणसम्बन्धीका उपलब्धिहरू उल्लेख गरिएको छ । पाणिनि उत्तरकालका भर्तृहरि, जयादित्य, वामन, रामचन्द्र र भट्टोजिदीक्षितका भाषिक चिन्तनलाई पनि प्रस्तुत गरिएको छ ।

पूर्व पाणिनीय व्याकरण परम्परा

लौकिक संस्कृतका भाषिक चिन्तनलाई तीन चरणमा विभाजन गरेर अध्ययन गर्न सकिन्छ ।

पाणिनि पूर्वकाल : यास्कको समयदेखि पछाडि र पाणिनिको अगाडिको समयावधि नै पाणिनि पूर्वकाल हो । पाणिनिको अष्टाध्यायी आउनुभन्दा पहिले व्याकरणसम्बन्धी थुप्रै उपलब्धिहरूको चर्चा गरिएको छ । कुनै वैयाकरणहरूको नाम अष्टाध्यायीमा उल्लेख गरिएको छ भने कुनै वैयाकरणहरूको भने कुनै सङ्केत गरिएको छैन । पाणिनिको अष्टाध्यायी व्याकरणमा उल्लेख नभए पनि अस्तित्वमा रहेका वैयाकरणहरूमा महेश्वर, ब्रह्मा, बृहस्पति, इन्द्र, वायु, भारद्वाज मुख्य हुन् । महेश्वरलाई पहिलो

व्याकरणकारको रूपमा चिनिन्छन् (पोखरेल, २०७५, मोडुल सामग्रीबाट उद्धृत) । यिनको नेतृत्वमा रहेको भाषिक सम्प्रदायलाई माहेश्वर सम्प्रदाय भनिन्छ । महेश्वरले बजाएको डमरुको आवाजबाट पाणिनिले व्याकरणसम्बन्धी चौध सूत्र प्राप्त गरी प्रयोगमा ल्याएको प्रसङ्ग आएको छ । भाषिक चिन्तनका आदि पुरुष ब्रह्माले 'चत्वारि वाक्' को कुरा गरेका छन् । चत्वारि वाक् भन्नाले परा, पश्यन्ती, मध्यमा र वैखरीलाई बुझिन्छ । मानव शरीरको मूलाधारचक्रमा रहेको नाद रुपिणी परावाणीबाट सिर्जना भएर क्रमशः पश्यन्ती र मध्यमा हुँदै वैखरीका रूपमा वाणीको अभिव्यक्ति हुन्छ । यही वैखरी वाणी नै मानवीय विचार विनिमयको माध्यम हो, यही नै भाषा हो (अधिकारी, २०७०, पृ.३) । महेश्वर अथाह व्याकरणिक ज्ञानका खानी थिए । उनले नै व्याकरणको ज्ञान बृहस्पति, इन्द्र, पाणिनिलाई दिएका थिए भन्ने कुरा सारस्वत भाष्यमा उल्लेख गरिएको छ । सारस्वत महाभाष्यको एउटा श्लोकमा उल्लेख भएअनुसार महेश्वरमा रहेको समुद्र समान व्याकरण ज्ञान राशिमध्ये आधा घडा बृहस्पतिमा, त्यसको एक शतांश इन्द्रमा र त्यसको पनि कुशको टुप्पाबाट झर्ने जलबिन्दु जति मात्र पाणिनिमा प्राप्त भएको थियो (अधिकारी, २०७०, पृ.४) । ब्रह्मापछि भाषिक चिन्तन परम्परामा बृहस्पतिको नाम उल्लेख गरिन्छ । पतञ्जलीद्वारा लिखित महाभाष्यमा बृहस्पतिले इन्द्रलाई शब्दसम्बन्धी उपदेश दिएको उल्लेख छ । बृहस्पतिद्वारा उपदिष्ट व्याकरणको अथाह र अपरिमित राशिलाई इन्द्रले छरितो र सुसंस्कृत तुल्याएकाले बृहस्पति, इन्द्र, चन्द्र हुँदै अगाडि बढेको व्याकरण चिन्तनपरम्परालाई ऐन्द्र सम्प्रदाय भनेर चिनिन्छ (अधिकारी, २०७०, पृ.४) । यस समयमा दुई व्याकरण सम्प्रदाय नै मुख्य रूपमा प्रचलित थिए : महेश्वर सम्प्रदाय र ऐन्द्र सम्प्रदाय । पाणिनिको अष्टाध्यायी, पतञ्जलीको महाभाष्य तथा अन्य सन्दर्भहरूमा उल्लिखित वैयाकरणहरू हुन् : आपिशलि, इन्द्र, काश्यप, वायु, गार्ग्य, भागुरि, शाकटायन, पौष्करसादि, शाकल्य, रौढि, स्फोटायन, काशकृत्स्न, भारद्वाज, शन्तनु, चक्रवर्त्मन, व्याडि र सेनक (न्यौपाने, भण्डारी र न्यौपाने, २०६७, पृ.४) । यी वैयाकरणका व्याकरण ग्रन्थहरू अनुपलब्ध रहेका छन् । यी वैयाकरणहरूका व्याकरणिकयोगदानले अष्टाध्यायी रचनामा पृष्ठभूमिको काम गरेका छन् ।

पाणिनि काल : पाणिनि कालअन्तर्गत पाणिनि, कात्यायन र पतञ्जलीले भाषिक चिन्तनमा गरेका योगदानहरू प्रस्तुत गरिएको छ ।

पाणिनिको व्याकरण चिन्तन : पाणिनिको समयावधिका सम्बन्धमा विभिन्न मतहरू देखिन्छन् । पाणिनिको समयबारे चूडामणि बन्धु (२०७०) भन्दछन्, "पाणिनिको समयबारे मतभेद छ तापनि यिनलाई भण्डारकर इ.पू. पाँचौँ शताब्दीका मान्दछन्" (पृ.१४) । पाणिनिका विभिन्न नामहरू उल्लिखित छन् । पाणिन्, दाक्षीपुत्र, शालङ्की, शालातुरीय, आहिक, पाणिपुत्र जस्ता नामहरू पाणिनिको सन्दर्भमा प्रयोग गरिएका छन् । पाणिनिको समय र स्थानको बारेमा मतान्तरहरू रहेका छन् । कतिपयले यिनको जन्म अर्घाखाँची जिल्लाको पनेनामा भएको तर्क गरेका छन् भने कसैले यिनको जन्म भारतमा भएको पनि उल्लेख गरेका छन् । शालातुरीय भनिएकाले शालातुर (पाकिस्तानको लाहुर) मा यिनको जन्म भएको हुन सक्ने अनुमान पनि गरिएको छ ।

पाणिनि लिखित अष्टाध्यायी व्याकरण चिन्तन परम्परामा महान् उपलब्धि हो । यो पूर्वीय व्याकरण परम्पराको उत्कृष्टतम व्याकरण ग्रन्थ हो । यसले व्याकरण लेखन परम्परालाई एउटा निश्चित दिशा

प्रदान गरेको छ । अष्टाध्यायीको रचनालाई मानव मस्तिष्कको विशिष्ट उपलब्धि मानिन्छ । संरचनावादी भाषा वैज्ञानिक ब्लूमफिल्डले अष्टाध्यायीलाई मानव मेधाको महत्तम स्मारक मानेका छन् (ब्लूमफिल्ड, १९३३) । अष्टाध्यायीको रचना भएपछि पहिले देखिएका सबै वैयाकरणीय अवधारणाहरू लोप भएको मानिन्छ । पाणिनीय व्याकरण भन्नाले पाणिनि, कात्यायन र पतञ्जलीले गरेका व्याकरणसम्बन्धी योगदानहरूलाई बुझ्ने गरिन्छ । तीनजना आचार्यहरूलाई लौकिक व्याकरणका त्रिमूर्ति भनेर पनि चिन्ने गरिन्छ ।

अष्टाध्यायी आठ अध्याय, ३९९६ सूत्रहरू भएको व्याकरण ग्रन्थ हो । अहिले यसमा ३९०३ सूत्रहरू मात्र उपलब्ध छन् । यसका प्रत्येक अध्यायमा ४/४ पाउ रहेका छन् (न्यौपाने र पराजुली, २०६९, पृ.५०) । पाणिनीय अष्टाध्यायी आठ अध्याय तथा चौध माहेश्वर सूत्रमा विभाजित छ । अष्टाध्यायीको पहिलो अध्यायमा ३५१, दोस्रोमा २६८, तेस्रोमा ६२१, चौथोमा ६२५, पाँचौँमा ६५६, छैटौँमा ५५५, सातौँमा ४३८ र आठौँमा ३६९ सूत्रहरू रहेका छन् ।

अष्टाध्यायी, पाणिनीय शिक्षा, द्विरूपकोश, धातुपाठ, गणपाठ, लिङ्गानुशासन र अष्टाध्यायीको स्वपञ्च नामक वृत्ति पाणिनिका मुख्य व्याकरण ग्रन्थहरू हुन् । पाणिनिको अष्टाध्यायीमा व्याकरणसम्बन्धी नियमहरूलाई सूत्रबद्ध गरिएको छ । कात्यायनले वार्तिक, पतञ्जलीको महाभाष्य लेखेर अष्टाध्यायीका सूत्रहरूको व्याख्या गरेका थिए । मुनित्रय पाणिनि, कात्यायन र पतञ्जलीले भाषिक चिन्तनमा व्याकरण लेखेर योगदान गरे । यिनीहरूको साझा प्रयासले नै अष्टाध्यायीले पूर्णता पाएको हो ।

पाश्चात्य विद्वानहरूले पाणिनिले उच्च वर्गले दैनिक व्यवहारका लागि प्रयोग गर्ने कथ्य भाषालाई आधार मानेर व्याकरणको रचना गरेको तर्क गरेका छन् । भारतीय विद्वान् मिश्रले पाणिनिको अष्टाध्यायीमा पाइने स्वराघात र काकु, अनुकरणात्मक शब्दको विवेचना, द्विरुक्त शब्दको अर्थनिर्धारण, प्रत्यभिवाद, दूराह्वान, पृष्ठ प्रतिवचन, प्रहास, विचार्यमाण जस्ता प्रसङ्गहरूको व्याख्याका क्रममा यस व्याकरणलाई कथ्य भाषामा आधारित व्याकरण हो भन्ने स्पष्ट पारेका छन् (आचार्य, २०७२, पृ.६३) । उनले बोलीचालीको भाषालाई महत्व दिएर अष्टाध्यायी पदव्याकरणको रचना गरेको देखिन्छ ।

पाणिनि व्याकरण व्यवहारमा आएपछि भने अधिकांश विद्वानहरू पाणिनि व्याकरणको व्याख्या र विश्लेषणतर्फ लागेको देखिन्छ । जयादित्य र वामनद्वारा रचित काशिकावृत्ति, रामचन्द्राचार्यले लेखेको प्रक्रिया कौमुदी तथा भट्टोजिदीक्षितले रचना गरेको सिद्धान्त कौमुदीले पाणिनीय व्याकरणलाई सरलीकृत तथा व्यावहारिक बनाउने काम गरेका छन् ।

पाणिनि लिखित अष्टाध्यायीको व्याकरणिक प्रयोगबाट पाश्चात्य आधुनिक भाषा वैज्ञानिकहरू पनि प्रभावित हुन पुगेका छन् । पाणिनिले नै भाषिक चिन्तनमा नयाँ युगको थालनी गरेको थिए । अहिले सबैजसो भाषामा प्रयोग गरिने व्याकरणको अवधारणा पाणिनिको देन हो । संस्कृत भाषाको सर्वप्रसिद्ध, सर्वसम्मूढ र सबैभन्दा वैज्ञानिक भाषिक चिन्तनका रूपमा पाणिनिको व्याकरणलाई लिइन्छ । यसले संस्कृतको मात्र नभई विश्वकै भाषाहरूको अध्ययन गर्ने वैज्ञानिक आधार प्रदान गर्दछ (अधिकारी, २०७०, पृ.६) । संस्कृत व्याकरण रचनाकारले व्याकरणका पाँच अङ्गहरूको संयोजनमा विचार पुऱ्याउनुपर्ने मान्यता रहेको

छः सूत्रपाठ, धातुपाठ, गणपाठ, परिभाषापाठ र लिङ्गानुशासन । अन्यथा व्याकरणलाई अपूर्ण मानिन्छ । अष्टाध्यायी यी सबै अङ्गहरूले पूर्ण व्याकरण हो । सूत्रपाठ यस व्याकरणको मुख्य पाठो हो । रूपायनका आधारमा धातुहरूका दश गण वा समूह उल्लेख गरिएको छः भवादि/भ्वादि, अयादि, जुहोत्यादि, दिवादि, स्वादि, तुधादि, तनादि, क्रयादि र चुरादि । यी उल्लिखित आदि भनिएका धातुहरूको पहिचान गर्नका निम्ति पाणिनिले धातुपाठको रचना गरेको अनुमान गर्न सकिन्छ । संस्कृतमा शब्दहरू धातुबाट मात्रै बनेका छन् । कृत् प्रत्ययबाट मात्रै तद्धित प्रत्ययहरू बनेका छन् । कुनै शब्दहरू पनि सग्ला छैनन् । पाणिनिले कस्ता प्रातिपदिकमा कस्ता लिङ्गका निम्ति कस्ता प्रत्ययको प्रयोग गर्ने भन्ने कुराको स्पष्टीकरणको लागि लिङ्गानुशासन लेखेको हुन सक्ने अनुमान गर्न सकिन्छ ।

अष्टाध्यायीमा सामान्यतया तीन किसिमका विषयहरूको प्रस्तुतीकरण भएको देखिन्छः पहिलो र दोस्रो अध्यायमा पदहरूको सङ्कलन, तेस्रो, चौथो र पाँचौ अध्यायमा प्रकृति प्रत्यय विभाजन र छैटौँ, सातौँ र आठौँ अध्यायमा आगम, आदेश आदि सन्धि प्रक्रियाद्वारा शब्द निर्माण । पाणिनीय अष्टाध्यायीमा अइउण् आदि चौध महेश्वर सूत्र र बयालिस प्रत्याहारको कल्पना गरिएको छ । महेश्वर सूत्रमार्फत् संस्कृत स्वर व्यञ्जन वर्णको क्रमबद्ध वैज्ञानिक प्रस्तुति गरिएको छ । एक स्वर (अइउण्), त्यसपछि विचलनशील स्वर (ऋलृक्), सन्धि स्वर (एओङ्, ऐऔच्), यसपछि अर्धस्वर (हयवरट्, लण्) गर्दै अघोष घोष व्यञ्जनको क्रम मिलाइएको छ (न्यौपाने, भण्डारी र न्यौपाने, २०६७, पृ.८) ।

षड्सूत्रः अष्टाध्यायीका सूत्रहरूलाई कार्य वा भूमिकाका आधारमा छ, प्रकारमा विभाजन गरिएको छ । तिनीहरू संज्ञा सूत्र, परिभाषा सूत्र, विधि सूत्र, नियम सूत्र, अतिदेश सूत्र र अधिकार सूत्र रहेका छन् । संज्ञासूत्रमा नाम, निपात, सर्वनाम, गुण, वृद्धि, पद, धातु जस्ता व्याकरणका पारिभाषिक शब्दहरूलाई बुझाउने/अर्थ्याउने विषयको उल्लेख गरिएको छ । परिभाषा सूत्रमा नियमहरूलाई स्थिरता दिने कार्य गरिएको छ । विधि सूत्रको प्रयोगमा सन्देह भएका ठाउँमा परिभाषा सूत्रले निर्णय दिन्छ तर स्वयम् विधान चाहिँ गर्दैन । परिभाषा सूत्र विधि सूत्रको सहयोगी हो । विधि सूत्रले प्रत्ययको व्यवस्था गर्ने, लोप गर्ने, आगम गर्ने र आदेश गर्ने नियमहरू बनाउँछन् । सामान्य नियमले स्वतः सिद्ध गर्ने कुरालाई थप नियमन गर्न विधान गरिएको विशेष नियामक सूत्र नै नियम सूत्र हो । नियम सूत्रले अन्य सूत्रहरूबाट भएको विधि वा व्यवस्थालाई आवश्यकता र परिस्थितिअनुसार सङ्कुचन र विस्तार दुवै गर्दछ । अतिदेश सूत्रले एउटा ठाउँमा भएको एक प्रकारको विधानलाई अर्को ठाउँमा पनि त्यही हुन्छ भन्ने व्यवस्था गर्दछ । प्रायः अतिदेश सूत्रमा 'वत्' प्रत्ययको प्रयोग हुन्छ । कुनै सिङ्गै वा आंशिक रूपमा सूत्रको पाउपर्यन्त वा सिङ्गै अध्यायपर्यन्त अनुवृत्ति हुन्छ भने त्यस्तो सूत्र अधिकार सूत्र हुन्छ ।

पाणिनि अष्टाध्यायीका आधुनिक भाषाविज्ञानको उपहार नै हो । यसका विशेषताहरू निम्नलिखित छन्

सूत्रपाठमा लाघवताः शब्दहरूको विश्लेषण सूत्रहरूको माध्यमबाट गर्ने प्रणालीको विकास पाणिनिबाट भएको हो । अध्याहार, अनुवृत्ति तथा अन्तरालम्बन जस्ता प्रक्रियाबाट अष्टाध्यायीलाई संक्षिप्तता र पूर्णता दिने काम भएको पाइन्छ । अष्टाध्यायीका कुनै पनि ध्वनि निरर्थक छैनन् । यसका सूत्रहरूवैज्ञानिक तरिकाले रचित छन् भन्ने मान्यता पतञ्जलीको रहेको पाइन्छ ।

माहेश्वर सूत्रको प्रस्तुति : संस्कृत व्याकरणहरूमा प्रयोग गरिने चौध माहेश्वर सूत्रका पहिलो प्रयोगकर्ता पाणिनि हुन् । भाषिक ध्वनिलाई चौधवटा माहेश्वर सूत्रमा सचेततापूर्वक प्रस्तुत गरिएको छ । पाणिनि रचित अष्टाध्यायीमा प्रयुक्त चौध माहेश्वर सूत्रहरू : अइउण्, ऋलृक्, एओङ्, ऐऔच्, हयवरट्, लण्, ञमङणनम्, भभञ्, घढधष्, जवगडदश्, खफछठथचतटव्, कवय्, शषसर, हल् हुन् ।

प्रत्याहारको कल्पना : माहेश्वर सूत्रबाट जम्मा ४२ वा ४३ प्रत्याहारको कल्पना गरेको व्याकरणको विश्लेषण गर्ने काम पाणिनिबाट भएको छ ।

व्याकरणिक नियमको प्रस्तुति : सीमित नियमहरूको प्रयोगबाट असीमित भाषिक क्रियाकलापको कल्पना पाणिनिले गरेको पाइन्छ ।

वर्णनात्मक पद्धतिमा सर्वाङ्ग विवेचन : अष्टाध्यायी पहिलो वर्णनात्मक पद्धतिमा आधारित व्याकरण मानिन्छ । पाणिनिले सन्धि रूपगत, वर्णनिष्ठ, वाक्यनिष्ठ र प्रकरण/सन्दर्भनिष्ठ हुने कुरा बताएका छन् ।

शब्द र पदको भिन्नता : पाणिनिले 'सुप्तिङन्तं पदम्' भन्ने सूत्रको प्रयोग गरेर 'शब्द' र 'पद' विचको भिन्नता देखाएका छन् । पाणिनिले विभक्ति नलागेका काँचा पदार्थ शब्द र विभक्ति लागेको पदार्थ 'पद' भएको कुरा बताएका छन् ।

शून्य रूपको कल्पना : पाणिनिले विभक्ति नलागेका निपात लगायतका अव्ययहरूलाई पनि पद मानेका छन् । अव्ययहरूमा 'सुप्' वा कारकीय विभक्ति लागेको कल्पना गरेर शून्य रूपको कल्पना गरेका छन् । आधुनिक रूपविज्ञानमा यसलाई शून्य रूप भनिएको छ ।

आकृतिपरक विश्लेषण : पाणिनि व्याकरणमा भाषाका संरचना र अर्थ दुवै पक्षमा जोड दिए पनि अष्टाध्यायी रूपरचना (रूपायन र व्युत्पादन) मा केन्द्रित रहेको व्याकरण हो ।

भिन्न मतको स्वीकार : पाणिनिले पूर्ववर्ती व्याकरणकारहरूका विचारहरूलाई समर्थन तथा खण्डनका साथ आफ्नो मतको स्थापना गरेको पाइन्छ ।

भाषिक भेदहरूको उल्लेख : अष्टाध्यायीमा दुईप्रकारका भाषिक भेदहरूको चर्चा गरिएको पाइन्छ । ऐतिहासिक भेदअन्तर्गत वैदिक र लौकिक तथा भौगोलिक भेदअन्तर्गत उदीच्य र प्राच्य भेद रहेका छन् । सामाजिक भेदहरूको पनि चर्चा पाणिनीय व्याकरणमा गरिएको पाइन्छ ।

पूर्ण व्याकरणको निर्माण : पाणिनिले व्याकरण लेखेपछि उनीभन्दा पूर्व व्याकरणहरू लोप भएको पाइन्छ । पाणिनीय व्याकरणलाई पाश्चात्य संरचनावादी भाषा वैज्ञानिक ब्लुमफिल्डले मानव मस्तिष्कको सर्वोत्कृष्ट मेधा भनेका छन् । यस भनाइले पनि उनको व्याकरण पूर्ण थियो भन्ने कुरा पुष्टि हुनजान्छ ।

शब्दलाई कच्चा पदार्थ ठान्नु : अष्टाध्यायीमापाणिनिले भाषाको न्यूनतम अर्थपूर्ण एकाइ शब्द भएको स्वीकार गरेका छन् । उनले शब्दलाई वाक्यात्मक अभिव्यक्तिको कच्चा पदार्थको रूपमा व्याख्या गरेका छन् । उनले शब्दहरूको अर्थयुक्त मेलबाट वाक्यात्मक अभिव्यक्ति तयार हुने कुरा स्पष्ट गरेका छन् ।

वार्तिककार कात्यायनको योगदान : कात्यायनलाई नाम कात्य, पुनर्वसु, मेधाजित् र वररुचि आदि नामबाट पनि चिन्ने गरिन्छ । कात्यायनले पाणिनिको अष्टाध्यायीलाई व्याख्या गर्ने तथा समस्याहरूको खुलासा गर्ने काम गरेको पाइन्छ । अष्टाध्यायीलाई पूर्ण बनाउनका लागि कात्यायनको भूमिका महत्त्वपूर्ण मानिन्छ । यिनले स्वर्गारोहण नामक काव्य पनि लेखेका थिए भन्ने विश्वास गरिन्छ । सो कृति अहिले अनुपलब्ध छ । वार्तिकको लक्षणबारे पराशर उपपुराणमा यस्तो उल्लेख गरिएको छ :

उक्तानुक्तदुरुक्तानां चिन्ता यत्र प्रवर्तते ।

तं ग्रन्थं वार्तिकं प्राहुर्वार्तिकज्ञा मनीषिणः ।

अर्थात् उक्त अर्थात् व्यक्त बताइएका ठाउँमा सन्देह, अनुक्त (नियमहरू छुटेका) ठाउँमा सन्देह, दुरुक्त (भुलचुक) भएर नियममा सन्देह हुनु, यिनै समस्याहरूका समाधानका लागि बनाइएका नियमलाई नै वार्तिक मनीषीहरूले वार्तिक भन्ने गरेका छन् (न्यौपाने र पराजुली, २०६९, पृ. ८३)। कात्यायनले पाणिनिकृत अष्टाध्यायीको परिपूर्ण गर्ने काम गरेका थिए । पाणिनिको समयभन्दा कात्यायनको समय पछाडि भएकाले केही समयगत परिवर्तनहरूकात्यायनका वार्तिकमा देख्न सकिन्छ । अष्टाध्यायीअनुसार सवर्णमा संहिता हुँदा दीर्घ हुनुपर्थ्यो तर 'शकन्वु' शब्दमा दीर्घ भएन । यस्ता समस्याका समाधानका निम्ति कात्यायनले 'शकन्वदिषु पररूपं वाच्यम्' जस्ता १५०० वार्तिक लेखेर तत्काल प्रचलित शब्दको सिद्धि गरेका छन् (न्यौपाने, भण्डारी र न्यौपाने, २०६७, पृ. ७) । यस कार्यले अष्टाध्यायीमा देखिएका समस्याहरू समाधान गर्न तथा पूर्णता प्रदान गर्नका लागि ठूलो योगदान गरेको पाइन्छ । कात्यायनले शब्द र अर्थका नित्य सम्बन्धमा जोड दिएका छन् ।

महाभाष्यकार पतञ्जलीको योगदान : पाणिनिका सूत्रहरू तथा कात्यायनका वार्तिकहरूको व्याख्या गर्न पतञ्जलीद्वारा रचित ग्रन्थ नै महाभाष्य हो । पतञ्जलीले व्याकरणको परिभाषा र प्रयोजनको व्याख्या गर्ने काम गरेका छन् । पतञ्जलीद्वारा रचित महाभाष्यका विशेषताहरू निम्न वमोजिम रहेका छन् :

- व्याकरण र रूपसिद्धिलाई दार्शनिक दृष्टिले हेर्नु,
- व्याकरण जस्तो रुखो विषयलाई अत्यन्तै सरल शैलीमा सविस्तार व्याख्या गर्नु,
- शब्दानुशासन वा व्याकरणका प्रयोजनको व्याख्या,
- स्फोट दर्शनको व्याख्या,
- वर्ण विश्लेषणका सिद्धान्तको स्थापना आदि ।

अष्टाध्यायी व्याकरणको परिपूर्णतामा स्वयम् पाणिनि, वार्तिककार कात्यायन र महाभाष्यकार पतञ्जलीको संयुक्त योगदान रहेको छ । संसारका अधिकांश भाषाका व्याकरणहरूले अष्टाध्यायीलाई अनुसरण गरेको देखिन्छ ।

पाणिनि उत्तरकाल : मुनित्रयको व्याकरण परम्पराभन्दा पछाडि देखिएका वैयाकरणहरूको समयावधि नै पाणिनि उत्तर काल हो । यिनीहरूलाई पनि पाणिनि व्याकरण सम्प्रदायभित्र राखेर अध्ययन

गर्ने गरिन्छ । पाणिनिको अष्टाध्यायी व्याकरणभन्दा नयाँ आयाम दिन सक्ने योग्य व्याकरण अद्यापि आउन सकेको छैन । यसकै आधारमा व्याकरण पठनपाठनको परम्परा बस्यो । अष्टाध्यायीलाई नै केन्द्रमा राखेर यसैको व्याख्याका निमित्त वृत्ति, टीका, कौमुदी तथा वाक्यपदीय जस्ता दार्शनिक ग्रन्थहरूको रचना भएको समयावधि नै पाणिनि उत्तरकाल मानिन्छ । यस समयका प्रमुख ग्रन्थहरू निम्न लिखित छन् :

भर्तृहरि	- वाक्यपदीय
जयादित्य र वामन	- काशिकावृत्ति (प्राचीन व्याकरण)
रामचन्द्र	- प्रक्रिया कौमुदी (नव्य व्याकरणको आरम्भ)
भट्टोजिदीक्षित	-सिद्धान्त कौमुदी
नागेश भट्ट	- शब्देन्दुशेखर, परिभाषन्दुशेखर र वैयाकरणसिद्धान्तमञ्जुषा

वाक्यपदीयमा भर्तृहरिले पद्यबद्ध विस्तार गरेका छन् । भर्तृहरिले पद, प्रकृति, प्रत्यय जस्ता व्याकरणिक कोटिहरूको दार्शनिक आधार दिएका छन् । जयादित्य र वामनले अष्टाध्यायीका सूत्रहरूलाई त्यसै क्रममा राखेर काशिकावृत्तिमा व्याख्या गरे तर रामचन्द्रले त्यस प्रक्रियाको व्यावहारिक औचित्य नभएको स्पष्ट पार्दै नव्य व्याकरणको रचना गरे । विद्यार्थीहरूको तह अनुकूलको बनाउने कार्य वरदराज भट्टले गरेको पाइन्छ (न्यौपाने, भण्डारी र न्यौपाने, २०६७, पृ.९) ।

वैदिक वाङ्मय र लौकिक वाङ्मयविचका भाषिक चिन्तनको तुलना

वैदिक कालमा भएका भाषासम्बन्धी व्याख्या, चर्चा तथा परिचर्चाहरू लौकिक कालमा भन् खारिएर आएका हुनाले यी कुराहरूलाई भाषिक चिन्तनका समानताको रूपमा व्याख्या गरिएको छ । वैदिक वाङ्मय र लौकिक वाङ्मय विचका भाषिक चिन्तनलाई निम्नानुसार व्याख्या तुलना गरिएको छ :

- ऋग्वेदमा अक्षर ज्ञानबाट ऋचाको ज्ञान हुन्छ भनेर अक्षर (भाषा) को महत्त्व बताइएको छ । लौकिक भाषिक चिन्तन परम्परामा व्याकरणको विकास गरेर भाषाको ज्ञान दिइएको छ ।
- ऋग्वेदमा पदज्ञानको महत्त्व देखाएर भाषा यादृच्छिक र परम्परित हुन्छ भन्ने कुराको सङ्केत गरिएको छ । यस कुरालाई परिष्कारपूर्वक व्याख्या तथा विश्लेषण लौकिक कालमा देख्न सकिन्छ ।
- यजुर्वेदमा प्रकृति र प्रत्ययको अवधारणा आएको छ । लौकिक कालमा निर्वचनसम्बन्धी व्यापक ज्ञान दिने काम गरिएको छ । पाणिनीय व्याकरणमा वर्णानिष्ठ, रूपगत, वाक्यनिष्ठ, सन्दर्भनिष्ठ जस्ता सन्धि व्यवस्थासम्बन्धी व्यापक चर्चा गरिएको छ ।
- भाषामा ध्वनिको साथसाथै अर्थ पनि हुने कुराको सङ्केत ऋग्वेदमा गरिएको छ । यसको विस्तारस्वरूप महाभाष्यकार पतञ्जलीले अर्थज्ञानविना पाठमात्र पढ्नेले केही बुझ्न सक्दैन भन्ने प्रसङ्ग उठाई अर्थको महत्त्व स्पष्ट पारेका छन् । उनले अर्थविनाको भाषालाई आगो नबालिकन थुपारिएका दाउरासँग तुलना गरेका छन् । भर्तृहरिको वाक्यपदीयका टीकाकार पुण्यराजले अठार प्रकारका अर्थभेद हुने कुरा गरेका छन् । यसकै सन्दर्भमा पछाडि स्फोट दर्शनको अवधारणा आएको पाइन्छ ।

- वेदका विभिन्न सूक्तहरूमा निर्वचनको सङ्केत गरिएको छ । यास्कले यसमा महत्त्वपूर्ण योगदान गरेका छन् । यसैलाई आधार मानेर लौकिक वाङ्मयअन्तर्गत पर्ने पाणिनि पूर्वकालीन रचना, पाणिनिकालीन रचना र पाणिनि उत्तरकालीन रचनामा यसलाई व्यापकता दिने काम भएको पाइन्छ ।
- गोपथ ब्राह्मणमा धातु र प्रातिपदिक, आख्यात, निपात, विभक्ति, स्वर, मात्रा, वर्ण, अक्षरको अवधारणा आएको छ । यसकै पृष्ठभूमिमा पाणिनिले पदलाई सुबन्त र तिङन्त गरी दुई भागमा वर्गीकरण गरेका छन् ।
- मैत्रायणि तथा ऐतरेय ब्राह्मणमा पनि वाणीका सात विभाग छन् भनिएको छ । ऐतरेय ब्राह्मणमा मन पूर्व रूप वाणी उत्तर रूप हो भनिएको छ । मनले सङ्कल्प गर्छ सो कुरा वाणीको रूपमा व्यक्त हुन्छ भनिएको छ । पाणिनिले भाषिक अभिव्यक्तिका लागि चौध माहेश्वर सूत्र र बयालिस प्रत्याहारको कल्पना गरेका छन् ।
- शतपथ ब्राह्मणमा मानिस, पशुपन्छी र सरिसृपको वाणीमा भएको भेद देखाएको छ । लौकिक वाङ्मय परम्परामा मानिसको भाषालाई व्याकरणबद्ध गर्ने काम गरिएको छ । शुद्ध उच्चारण तथा शुद्ध लेखनसम्बन्धी विभिन्न नियमहरू सूत्रबद्ध गर्ने काम भएको छ ।
- ऋग्वेदसँग सम्बन्धित ऐतरेय र शाङ्ख्यायन आरण्यक संहिता, पद, कर्मपाठ, स्वर, व्यञ्जन आदिको चर्चा गरिएको छ । लौकिक वाङ्मयमा ध्वनिविज्ञान, वाक्यविज्ञान, रूपविज्ञान तथा अर्थविज्ञानको सन्दर्भमा व्यापक व्याख्या विश्लेषण गर्ने काम भएको छ ।
- उत्तर वैदिककालीन रचना उपनिषद्मा अक्षर ब्रह्मबाट यो विश्वको उत्पत्ति हुन्छ । केनोपनिषद्मा अक्षरलाई ब्रह्मसरह मानिएको छ । अक्षर र ब्रह्म एउटै हुन् भनिएको छ । यसमा विद्या र अविद्या गरी दुई रूप हुन्छन् भनिएको छ । लौकिक भाषिक परम्परामा भाषा मानिसको सम्पत्ति भएको चर्चा गरिएको छ । अन्य प्राणीसँग भाषाको सम्बन्ध नरहेको बताइएको छ ।
- वेदाङ्गहरूअन्तर्गत शिक्षामा ध्वनिविज्ञान, व्याकरणमा पदविज्ञान र वाक्यविज्ञान, निरुक्तमा निर्वचन तथा छन्दमा पाउ वा चरणको बारेमा व्यापक चर्चा गरिएको छ । लौकिक वाङ्मयका विभिन्न व्याकरणिक ग्रन्थहरू विशेष त्रिमुनिका कृतिहरूमा ध्वनिविज्ञान, रूपविज्ञान, वाक्यविज्ञान र अर्थविज्ञानको व्यापक व्याख्या विश्लेषण गर्ने काम भएको छ ।
- प्रातिशाख्य र शिक्षामा वैदिक मन्त्रहरूको शुद्ध उच्चारण र अर्थनिर्धारणसम्बन्धी व्याख्या गरिएको छ । स्वर व्यञ्जन आदिको उच्चारण वर्ण, स्वर आदिको उच्चारणसम्बन्धी उदात्त, अनुदात्त, स्वरित, ह्रस्व, दीर्घ, प्लुत, आदिको उच्चारण कसरी गर्ने भन्ने विषयमा सिकाउने काम प्रातिशाख्य र शिक्षा

ग्रन्थहरूमा भएको छ । उच्चारणको सन्तुलनसम्बन्धी धारणा दिइएको छ । उच्चारणमा गति, यतिसम्बन्धी विचार व्यक्त गरिएको छ भने विभिन्न उच्चारण अवयवको बारेमा समेत चर्चा गरिएको छ । यसैको पृष्ठभूमिमा लौकिक वाङ्मयअन्तर्गत पाणिनिपूर्व, पाणिनि युगमा तथा पाणिनि उत्तरयुगमा भाषालाई नियम शासित गर्ने काम भएको छ । उच्चारण व्यवस्था, वर्णव्यवस्था, वाक्यगठन, कारक र विभक्ति, स्फोट दर्शनको चिन्तन प्रगाढ बन्दै गएको देखिन्छ ।

वैदिक संहिता, ब्राह्मण ग्रन्थ, आरण्यक, उपनिषद्, वेदाङ्ग, प्रातिशाख्य, शिक्षालगायतका वैदिक कालका ग्रन्थहरूमा चर्चा गरिएका भाषासम्बन्धी व्याख्या विवेचनालाई अङ्गीकार गरी थप विस्तृतीकरणका साथ लौकिककालीन भाषिक चिन्तन अगाडि बढेको तथा सम्पूर्ण संस्कृत वाङ्मयमा भए गरेका भाषिक चर्चा परिचर्चाको आधारमा आधुनिक भाषाविज्ञानको विकास भएको हो भन्ने कुरा सर्वग्राह्य छ ।

निष्कर्ष

वैदिक वाङ्मयका भाषिक चिन्तन भन्नासाथ वैदिक संहिता, ब्राह्मण ग्रन्थ, आरण्यक, उपनिषद्, वेदाङ्ग, प्रातिशाख्य, शिक्षाग्रन्थ जस्ता कृतिहरूमा भएका भाषासम्बन्धीका विचारहरूलाई लिने गरिन्छ । ऋग्वेदमा भाषाका चार रूपहरू परा, पश्यन्ती, मध्यमा र वैखरीको कल्पना गरी भाषिक चिन्तनको प्रारम्भ भएको पाइन्छ । वेदका विभिन्न प्रसङ्गहरूमा वाक्त्व, भाषाको उत्पत्ति, व्याकरण, छन्दको विश्लेषण, वाणीका भेदहरू, मनस्तत्त्व तथा वाक्त्वसम्बन्धी अक्षर, पद आदिको चर्चा गरिएको छ । प्रातिशाख्य र शिक्षाग्रन्थहरूमा वैदिक सूक्तहरूको उच्चारणको शुद्धताको निर्णय गर्ने काम भएको छ । निघण्टुमा वैदिक शब्दहरू सङ्कलित छन् भने निरुक्तमा शब्दहरूको निर्वचन प्रक्रियाको बारेमा व्याख्या गरिएको छ । वैदिक संहिता, ब्राह्मण ग्रन्थ, आरण्यक, प्रातिशाख्य, शिक्षा पूर्वीय परम्पराका मुख्य भाषिक सामग्री हुन् । पाणिनि अष्टाध्यायी तथा कात्यायन र पतञ्जलीका व्याकरणिक कृतिहरूमा आपिशलि, इन्द्र, काश्यप, वायु, गार्ग्य, भागुरि, शाकटायन, पोष्करसादि, शाकल्य, रौढि,, स्फोटायन, काशकृत्स्न, भारद्वाज, शन्तनु, चक्रवर्मन, व्याडि, सेनक जस्ता पूर्व वैयाकरणहरूको चर्चा गरिएको छ । पाणिनि व्याकरणको आगमनसँगै सबै प्रकारका पूर्व व्याकरणिक चिन्तनहरू ओझेलमा परेका हुन् । सबै व्याकरणिक कुराहरू वैज्ञानिक तवरले अष्टाध्यायीमा समेटिएको छ । चौध माहेश्वर सूत्र तथा बयालिस प्रत्याहारको माध्यमबाट सम्पूर्ण भाषालाई नियमबद्ध गर्न सक्नु पाणिनिको अद्वितीय क्षमता हो । अष्टाध्यायी सूत्रपाठ, धातुपाठ, गणपाठ, परिभाषापाठ, लिङ्गानुशासनको कुशल संयोजन भएको बहुचर्चित व्याकरण हो । आधुनिक व्याकरणको निर्माण संस्कृत व्याकरण परम्पराको देन हो । पूर्वीय वाङ्मय जगतमा भाषिक चिन्तनको सुदीर्घ परम्परा रहेको देखिन्छ । यसैलाई आधार मानेर पूर्वीय तथा पाश्चात्य जगतमा अद्यापि भाषिक चिन्तनहरू भइरहेका छन् । यस्ता महत्वपूर्ण भाषिक चिन्तनहरूको वैज्ञानिक खोज अन्वेषणको जरुरी छ । आधुनिक भाषा व्याकरणमा देखा परिरहेका नयाँ नयाँ चिन्तनहरू संस्कृत व्याकरण परम्पराको पृष्ठभूमिमा भएका हुन् ।

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