

COST OF REMITTANCES: A CASE STUDY IN DHIMAL COMMUNITY

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Abstract

This study was a case study, carried out in Dhimal Community of Damak Municipality in Jhapa District on the impacts of remittance in their life. Remittances received from migrants working abroad to Nepal have grown dramatically and tremendously being the largest contributor to foreign exchange reserves. Various causes of migration were economic hardship, lack of employment opportunity or hope of job in the foreign country, expectation of high wage, desire to go abroad, lured by friends, demonstration effect and payment of loan. Thus, leaving other causes, creation of productive employment opportunity would stop unbeneficial migration. The direct and indirect costs of foreign employment were too high. The exploitation of manpower companies and their agents and high rate of interest the loan taken from informal sector result this high cost. The objective of this study was to examine direct and indirect costs and major determinants of income of the remitting households of Dhimal community with qualitative and quantitative cross sectional data using structured questionnaires. The study results showed that even though socioeconomic conditions of the households improved after receiving remittance, the rates of interest was observed high. The result on access to send remitted income was highly satisfactory. However, the results on direct and indirect costs showed that remitters bore high degree of burden of costs. The burden increased as the costs turned to direct to indirect.

Keywords: remittance, economy, migrants, exploitation, monetary, manpower

Background

Remittance has proven to be one of the significant international financial flows in recent years. The increased global integration and the enhancement in communication technology have facilitated the movement of labor from one country to another and, as a result, the flow of remittances started growing at a higher pace. While there is a moderate rise in remittances transmitted to developed countries, the remittances sent by migrants to developing countries has witnessed dramatic surge recently. This happened precisely after 1990s when the migration from developed countries in the North accepted many migrant workers from the poor in the South (Massey, 1999). The remittance has been observed as a means to affect well-being and capacities of not only the households getting the remittance but also the sending community as a whole (De Hass, 2007).

Nepal has also the long tradition of overseas employment which started particularly after the people started migrating to neighboring Indian cities. The trend now, however, has shifted and the overseas employment has become one of the attractive options for

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many leaving the country to work abroad. Nepal earned remittance income of NRs 52855.4 million in FY 2015/16 (NRB, 2015/16), which amounts to be 29.1 percent of its gross domestic product. A number of villages in rural Nepal have been deserted by young working age individuals, turning the Nepalese economy from rural agro- based economy into the remittance economy.

While the positive aspects of migration can lead to economic gains for the receiving countries, it can also lead to unintended consequences in both the sending and receiving countries. Some of these consequences include an outright deprivation of vital human resources in sending countries, and by implication the adverse impact of migration of skilled workers on the brain drain phenomenon in sending countries. There are also the issues of cultural conflicts in receiving countries, human trafficking, economic exploitation of migrants, sending country dependency patterns, delayed economic growth in sending countries.

Migration of Nepalese youths for foreign employment increased rapidly especially after restoration of democracy and liberalization process in 1991. International migration generated enormous improvements in people's lives. In Nepalese context, uses of the remitted funds have high potentiality to reduce poverty and create economic security for the household and community.

Remittances constitute an integral part of household livelihood strategies. Remittances make direct contribution to raising household income, which broaden the opportunities to increase income. Remittance brings a change, especially in ethnic groups like Dhimals; with cost of remittance on them, who have own common socio-economic and cultural characteristics and it paves new ways to formulate remittance policies changing socioeconomic structure of the economy,

Study Area

Damak is one of the oldest municipalities in Jhapa District of Mechi Zone , located in the south-eastern Terai of Nepal. It is situated between the Ratuwa River in the east and the Maawa River in the west. It is a beautiful area which has Sivalik Hills in its north and ends with the intersection of Ratuwa River and Mawa River in the south creating a fascinating land structure. Mahendra Highway crosses this municipality nearly bisecting it. It is located in between the latitude 26° 35" N to 26° 45" North and longitude 87° 39" East to 87° 51" East (Damak Municipality Profile, 2013). It is the multicultural, multilingual and diverse community. However, Dhimal belongs to ethnic community having distinctive culture and lifestyles. The recent phenomenon in foreign employment has attracted them.

Cost of Remittances

International migration incurred costs for passport, visa, medical check-ups, travelling and settling, trainings, manpower company's fees, etc. The amount of cost depended upon the choice of migrant country, wages, and so on. If the cost was minimal, migrants would benefit from migration and vice versa. Thus, migrants cost was considered one

of key issue of analysis. Cost of migration varied from one country to another and from one region of another. Similarly, if the migration service was competitive and fair, for the same job and country, the cost would be same for each migrant and if there was fraud, exploitation from brokers/manpower agents, the cost would be artificial as well as high. Lack of information, voiceless honest migrants may bear more costs. First visit costs may be greater than upcoming next ones. Dhimal community is out of capital and migrants had to stay on hotels to finish overall proceedings and it would also lubricate costs. Costs are divided into monetary and social costs.

Population and Sample

Population comprises some observations selected from the population of Dhimal community. There was no database available on the number of people in Dhimal community migrants in Damak Municipality. Therefore, a possible way to find the total number of migrants would have been by surveying all the Dhimal households residing within the Damak municipality.

There were 867 households of Dhimal ethnic group within the Damak Municipality in its all 19 wards who are remitters and it was the universe or population size out of which samples are drawn. Out of the universe, 103 remitter households were selected applying proportional random sampling method on the basis of Raosoft sample determination calculator. The numbers of households are fixed according to Raosoft calculator and its results were parallel to sample determination formula. Therefore, there was not any contradiction on sample size determination. The distribution of households of the universe according to ward's was highly varied and it was clearly reflected on the samples drawn (Table 1).

Table 1: Distribution of Samples of Dhimal Community by Wards

Municipality Wards	Total Number of Remitter Households	Selected Number of Remitter Households
1	4	1
2	60	7
3	56	6
4	71	8
5	3	1
6	92	11
7	72	8
8	40	5
9	68	8
10	15	2
11	1	-
12	3	1
13	-	-
14	5	1
15	72	9

16	120	14
17	110	12
18	22	3
19	48	6
Total	867	103

Source: Field Study and Self Calculation, 2015

Distribution of Households by Total Monetary Costs of Foreign Employment

The cost for international migration varied from the country to go because the visa fees and travel expenses were also similar according to countries and nature of job. Inferior jobs may have low costs. High wage rate correlated positively with costs. Education and skill of migrants may reduce cost. Nevertheless, costs were determined by different factors. This study was just to find out total cost of migrated households.

The results on the table showed that migration cost ranged from Rs. 60000 to Rs. 160000 for 103 Dhimal migrants. The low cost bearing households were 20 (19.5 percent taking the norm that up to Rs. 75000, the cost coverage was normal for all visa needed countries. The number of sampled households, those cost of migration was above Rs. 75000 were 80.5 percent. Thus, the cost of migrants showed that Nepalese migrants paid at least their nine months income to fly to abroad. Therefore, if cost of migration were not checked up well, such days would not too far that costs overweigh revenue for Nepalese migrants (Table 2).

Table 2: Distribution of Households by Total Monetary Cost

Expenditure (In Rs.)	Sample Households	Sample Percent
60000	18	17.5
70000	1	1.0
75000	1	1.0
80000	5	4.9
90000	9	8.7
100000	13	12.6
120000	16	15.5
130000	8	7.8
140000	5	4.9
150000	23	22.3
160000	4	3.9
Total	103	100.0

Source: Field Study, 2015

Distribution of Households by Monetary Payment to Manpower Companies

The amount of money paid to manpower companies ranged from Rs.50000 to Rs. 140000. Out of 103 households, 23 households (22.4 percent) paid costs to manpower companies below the amount Rs.65000 and remaining 80 households (76.6 percent) paid the amount up to Rs. 65000. The cost to manpower companies covered nearly 90.0 percent of overall cost of the study area and the cost was out of reality. So, the results revealed that there was dare need to revise existing service charge of manpower companies (Table 3).

Table 3: Distribution of Households by Money Paid to Manpower Companies

Expenditure (In Rs.)	Sample Households	Sample Percent
50000	15	14.6
60000	7	6.8
65000	1	1.0
70000	9	8.7
80000	15	14.6
85000	3	2.9
90000	4	3.9
95000	16	15.5
100000	4	3.9
105000	4	3.9
110000	4	3.9
120000	12	11.7
130000	4	3.9
140000	5	4.9
Total	103	100.0

Source: Field Study, 2015

Distribution of Households by Sources of Monetary Cost

The monetary costs of international migration were too high and there was need to manage them. The cost of migration were fulfilled from savings of own family, selling of land, cattle, gold etc. If the existing individual sources could not supply the cost, migrants borrow from banks or local money lenders. Formal loan taking processes took lengthy time. So, migrants took loan from local money lenders at higher rate of interest. The results showed that sources of monetary costs. Saving of family, selling of tangible assets, borrowing from local money lender had 4.9 percent, 6.8 percent and 88.3 percent shares to supply monetary costs to fly to foreign countries to have job. The study results for Dhimal community showed that most of them took loan from local merchants at local higher rate of interest (Table 4).

Table 4: Distribution of Households by Sources of Monetary Cost to Send to Foreign Employment

Sources	Sample Households	Sample Percent
Savings of Family	5	4.9
Selling of Tangible Assets	7	6.8
Borrowing from Local Money Lender	91	88.3
Total	103	100.0

Source: Field Study, 2015

Distribution of Households by Amount of Loan for Foreign Employment

As already stated, migrants took loan to cover cost of flying overseas. Thus, it needed to know that the amount of loan the remitter had to pay in the future (Table 5).

Table 5: Distribution of Households by Amount of Loan for Foreign Employment

Expenditure (In Rs.)	Sample Households Out of 103	Sample Percent
50000	20	22.0
60000	3	3.3
80000	9	9.9
90000	4	4.4
100000	23	25.3
120000	12	13.2
130000	8	8.8
150000	8	8.8
160000	4	4.4
Total	91	100.0

Source: Field Study, 2015

The amount of loan ranged from Rs. 50000 to Rs.160000 for 91 households that took loan. The amount of loan and household numbers showed nearly positive relation that more the households, the more the amount of loan. The highest point was 23 households had Rs.100000 amount of loan to repay and average per household had nearly Rs.80000. Nevertheless, the loan pattern showed migrants were in debt burden.

Average Loan Amount and Interest Rates

Average group loan amount negatively correlates to future economic activities of migrants. If loan amount is high, it creates future burden of repayment and reduces economic activities of households that would be run from such remitted income. Similarly, interest rate would create burden on the income of remitter family. If the

interest rates are high, there are low chances of positive impacts on income generating activities of the family and vice versa (Table 6).

Table 6: Average Amount of Loan and Interest Rate of Migrants

Categories	Minimum	Maximum	Range	Average
Loan Amount (NRs.)	50000	160000	110000	98763.4
Interest Rate (In Percent)	18	36	18	26.6

Source: Field Study, 2015

The average loan amount was NRs. 98763.4 for Dhimal community and it ranged from NRs. 50000 to NRs. 160000. Similarly, the average rate of interest was 26.6 percent and its spread rate was 18 percent. The results inferred that interest rates were too high and it undermined the income of the loan receiving households.

Income Sources to Repay Remittance Driven Loan

Most of the households took loan to migrate for foreign employment. They needed sources of income to refund the loan. Such sources may differ according to income sources of the respondent. The study found four major sources that recover the past loan. The results showed that most of the loan was paid from remittances. The share of remittances to cover the loan refunding was 90.1 percent and the remaining shares went to foreign employment in the near future and salary. The share of employment in own country and salary were 8.8 percent and 1.1 percent respectively (Table 7).

Table 7: Distribution of Households by Income Sources of Payment of Remittance Driven Loan

Sources	Sample Households	Sample Percent
Employment in own country	8	8.8
Remittances	82	90.1
Salary	1	1.1
Total	91	100.0

Source: Field Study, 2015

Indirect Costs of Remittances

Foreign employment had also intangible costs such as death of worker, opportunity cost of foreign employment, tensions, family disintegration, divorce, negative psychological impacts on children, loneliness, home sick, burden of loan, fraud, health handicapped etc. The indirect costs overweighed monetary cost and the items of indirect cost were too lengthy and it differed from one place to another and according to migrants.

Generally, researchers focused on gains from diaspora and they left dark sides of the same coin. Thus, this study took responses on indirect cost of remittances of the study area.

Distribution of Households by the Problems Faced in the Working Country

Indirect cost appeared from different causes. The causes would differ from one to another. The major problem faced by migrants made monetary as well as non-monetary losses. The (Table 8) results indicated that the list the problems faced by Dhimel migrants was lengthy as well as pitiful. The migrants were cheated from manpower Company, friends, Hundi service, room partners, own country friends and friends that had to deliver goods at home. Financial fraud, over charging of service fees, legal tensions, delay in visa process and false information about the job and salary were vital problems of the study area migrants. Verbal abuses from company men, frustration, insecurity, risky working place, physical tortures and payment of loan were other problems faced by the Dhimel migrants. The nature of problems faced by respective households inferred that there was no gain from remittances.

Table 8: Distribution of Households of Migrants by Major Problems Faced

Problems	HHs Out of 103	HHs Percent
Financial Fraud	56	54.4
Delay and Betray on Visa	76	73.8
Overcharging of Cost	55	53.4
False Information on Job	67	65.0
False Information on Wage	72	69.9
Verbal Abuse at Working Place	61	59.2
Physical Torture at Working Place	7	6.8
Threat at working Place	45	43.7
Residential Problem At Working Place	51	49.5
Tension to Repay Loan	64	62.1
Feeling of Insecure	55	53.4
Loneliness	91	88.3
Frustrations	49	47.6
Home Sick	97	94.2
Legal Tensions	17	16.5
Cheating from Own Country Friends	41	39.8
Cheating from Hundi Service	9	8.7
Cheating from Room Partner	33	32.0
Cheating from goods carrier to home	67	65.0

Source: Field Study, 2015

Distribution of Households by Migrants Family Members Left to Country Facing Problems

The sad sides of remittances not ended with the problem faced by migrants. The sad sides of migrants clearly reflected to migrants family and finally the sad sides reflected in such a way that there was two way transfer of pains both to remitter and remitter's family. If the migrant was died, the whole family was either disintegrated or the family would loss the inherent property. The problems faced by family members differed from one household to another (Table 9).

Table 9: Distribution of Households by Migrants Family Members Left to Country Facing Major Problems

Problems	HHs out of 103	HHs percent
Feeling Insecurity	81	78.6
Feeling of Loneliness	91	88.3
Domestic Problem Management	56	54.4
Risk of Sexual Abuse	38	36.9
Domestic Violence	23	22.3
Drug Abuse	15	14.6
Criminal Behavior	34	33.0
Psychological Dysfunction	28	27.2
Emotional Deprivation	45	43.7
Loss of Old Income Sources	32	31.1
Tension to pay Interest of Loan	19	18.4
Tension from other Family Members	45	43.7
Divorce	5	4.9

Source: Field Study, 2015

Major problems faced by family members were feeling of insecurity, loneliness, difficulties in domestic problem management, sexual abuse to spouse of migrants, tension to pay interest of loan, family member conflict due to remitted money, domestic violence and loss of past sources of income. The major problems were seen to the children of migrants were teenager pregnancy, drug abuse, criminal behavior and psychological disorder. The problems indicated that family members migrate to carry happiness but sadness enters before the migrants return back to home. The problems neither left any member of the family. The indirect impacts harmed all age members within the family. Sometimes, the children became homeless.

Respondents Suggestions to Foreign Employment Agencies on Foreign Employment Related Issues

Migrants faced difference problems on foreign employment. The problems varied from one to another. Each household was requested to rank the list of vital problem which can minimize the severity of the problem. The ranked results were presented in the Table 10.

Table 10: Respondents Suggestions to Foreign Employment Agencies on Foreign Employment Related Issues

Categories	Rank	HHs out of 103	HHs Percent
Double Free Insurance Services	1	87	84.5
Free Skill Training on Job related work	2	81	78.6
Working Country on spot Passport Service	3	77	74.8
Reduce Cost	4	68	66.0
Provide Reliable Security	5	66	64.1
Free Legal Service to Working Country	6	65	63.1
Language Skill Facilities	7	62	60.2
Subsidized Loan Facility to Cover Cost	8	58	56.3
Full Compensations Against Fraud	9	56	54.4
Free Health Examination Services	10	55	53.4

Source: Field Study, 2015

The households ranked double insurance service first. Other suggestions were free skill training on the job related work, on the spot passport service to the working country, reduction in cost, reliable security, free legal service to the working country, language skill development facilities, subsidy on the loan for work, full compensation from any kind of fraud and free service to health examination before flying to working country ranked second to tenth. The results on the suggestion inferred that migrants were to reduce cost of remittances through free services and compensations.

Conclusion

A significant number of people in developing world are now receiving remittance earnings to finance their expenditures in home consumption, health and in children's education. But the remittance has cost which the migrants ought to pay. Monetary cost as well as indirect costs measured in term of problems faced by remitter and remitter's family members indicated that foreign employment is bane rather than boon for Nepalese migrants. Exploitation of manpower companies and high burden of loan indicated that remittances only benefited manpower companies and their agents. The unproductive use of remittance income would intensify further import led consumerism in the future. Therefore, Dhimal community of Damak Municipality of Jhapa district were not benefited from remittance income, rather they were losers if direct and indirect costs were put into the economic analysis.

Economic hardship, lack of employment opportunity or hope of job in the foreign country, expectation of high wage, desire to go abroad, lured by friends, demonstration effect and payment of loan caused suffering in foreign employment. The direct and indirect costs of foreign employment were too high due to exploitation of manpower companies and their agents and high rate of interest the loan taken from informal sector. Thus, cost minimization measures should be adopted by Foreign Employment Department adopting costless migration policy. Costs for different services must be free or minimal and such costs must be already fixed and information was to be made public through information and communication services of all types. The indirect cost must be minimized through insurance policy for the remitter as well as his/her family members. The government should provide subsidized loan to remitters to avoid debt burden. Remitted income should be channeled to productive sector through remittance bonds and make remitted income the backbone of the national economy accessing to all ethnic groups of Nepal.

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KING LEAR: DECONSTRUCTION OF THE SELF

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Abstract

The World is infinite text, and the language is the ground of being in the infinite chain of signifiers in play. Language constitutes human being and the text. Language produces the world, because it is unstable, ambiguous, and ideological like us, and we and language are same. Language, we, and the culture are unstable and fragmented. We don't have 'identity' that tells our 'self' because we have multiple conflicting beliefs, desires and fears. We generally internalize conflicts, and contradictions of our cultures seeking 'fit' through language but unfortunately we find ourselves fragmented, contradictory and ambiguous. We are different everywhere every time. We fail to know ourselves and fail to be known and presented identity. Deconstruction helps to see ideological differences operating through language. Human identity is a myth, because the identity changes. Human being gets identity through group, culture and religion etc. This article aims to analyse William Shakespeare's play 'King Lear' through the deconstructive lens to find out continuous deconstruction of the self.

Keywords: deconstruction, infinite, motivation, reasoning, conflict, instability, perception, ambiguities, difference

Introduction

William Shakespeare (1564-1616) became a mystery and conflicting personality from his birth. His birth is still controversial and his life and works are not its exception. He was the oldest son out of eight children from the parents John and Mary. Neither his studies in the Stratford Grammar School show his achievements nor are his views about life and society distinctively seen without reading his plays and sonnets. He had married in 1582 with Anne Wheatley but it goes blank after some years. His life is full of legends and myths, which suggest that what he did in his life are not stable. He frequently changed himself. His self was not constant, and his life was unpredictable. "Shakespeare has been praised for his 'knowledge of the human heart' for his superb poetry,action, theatrical skills, and for his ability to create living world of people...." (Daiches 246, vol II).

Various myths and legends about Shakespeare reflect his instability. He is said to be the gentleman's groom or, bastard son of the poet Sir William Davenant, or curtain puller in the theatre, or servant of the Lord Chamberlain etc. These mysteries make his life more gorgeous, more variant and more meaningful in his writing. Most of the major characters in his plays are unstable in their thoughts and behaviours. The major character Hamlet in *Hamlet* presents himself as the contradiction between thought and action. He fails to 'make appropriate decision' and falls into the violence and revenge. The complicated relationship between parents and children, and life and society are

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reflected however they are unpredictable. What Hamlet does is unpredictable till the end of the play. Mental instability of Hamlet can be seen there, in which he longs to regain his idealized mother back. This makes Hamlet have moral frustration. In *Othello*, Moor (Othello) becomes the victim of jealousy and faces mental turmoil about his beautiful wife Desdemona's roles. He becomes confused for a long time and it is difficult to predict what he does to his wife. Othello confronts with the unrecognized enemies and his strife seems to be futile. Uncertainty leads to the unknown and fatal destination. Same thing happens in *Macbeth*, in which the protagonist Macbeth seems instable in his decision, whether to kill Duncan or not. Lady Macbeth motivates him to kill the king so that Macbeth could be the king of Scotland. Macbeth remains unstable, visits the witches again in their cave. He still believes that no human being can harm him. But he faces bitter revenge. In *Antony and Cleopatra*, powerful Roman has a love to the beautiful Egyptian Queen, and it causes war. It is unpredictable what many things seem to be instable; Cleopatra's death is just rumor and Antony tries to commit suicide and dies. Cleopatra kills herself hearing this news. They seem to have instability in mind and make unpredictable decision.

Shakespeare's all plays reflect the protagonists' follies, temptation, mental disorder and bewildered situation of life. They ever make mistakes, known as tragic flaw and get punished. Tragedies occur when there is moral conflict. These conflicts of mind determine 'undesirability' and uncertainty overall phenomena. Their previous identity gets loosed and another identity reflects. Their instability of thoughts and actions reveals amazing consequences. Nothing can be sure about them. They frequently change and confront unpredictable and sometimes even unbearable circumstances. His historical plays present overall possibilities of human follies, bravery, achievements, failures and so forth. To see infinite dimensions of human life is the key insight that he applies in his plays. They predict the causes and consequences of rebellion, war, patriotism, conspiracy, plotting, peace, betray and support. They deal the nature of integration and disintegration of human life through his comedies and tragedies. He appeals wits, educated and sophisticated life with multiple knowledge in *Love's Labour's Lost*. Shakespeare, in *Merchant of Venice*, seeks to combine new dimensions of life in both comic and notorious manner, which permanently dwell in human mind. He sees fine and happy solution of love in his *As You Like It*. He asked a question in *Twelfth Night* addressing beloved that everything is 'unsure' and summons to consume love at present. He wants to unite personal affections and political ambitions in *Julius Caesar*, but Shakespeare's conclusion goes there that this equilibrium is 'unstable' throughout the lifetime and it cannot be maintained. The most significant aspect of Shakespearian drama is the presentation of 'disguise' of the characters. This is symbolically an aspect of life that lives in disguise. We are frequently breaking our identity and making a new identity. Human life cannot sustain and survive without having more appearances and every time the existing appearance gets destroyed and new formed.

King Lear, a great tragedy of Shakespeare, takes the story from the folklore revealing the symbolic pattern of imagery in the diverse form in human life. It treats paradoxes

and dichotomy reverses in: light verses dark, sight verses blindness, knowledge verses innocence, good versus evil, and self verses society. For instance, the king is supposed to be wise but he is foolish, and the Fool is supposed to be foolish but he is wise. Such conversion deconstructs the earlier presumed ideas. Lear's false vision and self – blindness in the beginning of the play drags the plot till the last scene of the play. 'Nature' plays vital role in making absurd decision for Lear, because life is the product of nature and it cannot go beyond nature; which reflect unpredictable human dimensions.

Brief introduction of deconstruction

Deconstruction is a critical theory that separates ideas from its connotations. It is a purely objective analysis that disregards all contexts and refuses the concrete meaning. It is similar to New Criticism, but different from Historical, Structural, and most other critical theories. Deconstruction is exactly this -- an objective analysis of each part of the whole. However, each piece is observed as it is; the gear is still a gear and the spring is still a spring. No unnecessary parallels are made between a literal object and a figurative meaning. Everything is to be taken at face value of the literary text. Essentially, any references can only come from the text, and there is no writer -- the text simply is. 'Deconstructive critical theory seeks to eliminate all previous preconceptions by a reader or analyzer: judgments made with other texts in mind, or external influences in analysis' (Lye, 2008).

Deconstructive criticism is preliminary Founded by Jacques Derrida in 1966 at John Hopkins University, Luce Irigaray, and Geoffrey Hartman from 1960s claiming to disregards the author's circumstances. When there was belief in the Eurocentric views and modernism. Modernism highlighted humanism, reasonable truth, fixed reason, naturalism, science, social order and optimism. Truth was considered to be absolute and meaning of the text to be stable having determinacy. Man was in the centre and man's perceptions were thought to be final. Plurality of the text was denied. But deconstruction denied modernism and focused post-modernism and new – modernism accepting relativism, reality a social construct, fragmentation, indeterminacy, domains world views, no universal truth, various perspectives, interpretation of interpretations. It has aimed to enhance our ability to think critically, the knowledge is 'built into language'. Language is not reliable tool to communicate; rather it is ambiguous domain of complex experiences in which ideologies program us without being aware of them. Knowledge by language, meaning by past usage of language is believed in deconstruction. Deconstruction is a broad phenomenon of human ideas that grows/covers in every area of our cultures; which breaks traditional values and rejects 'modernism'. It believes in the 'death of the author' in which the author's role ends after the creation of text. The readers and the author never meet, readers never share what the author intended in writing this text. What the reader does to mean the text is agreeable to all. Writing is only reducible to arbitrary linguistic sign. As a result, meaning becomes temporary, unstable, ambiguous, indeterminate and contradictory.

Deconstruction is the experience of the impossibilities, and it is not a technique to apply, but the deepest denial of the references, contexts and historicity. It is the poststructuralist theory in which meaning is constructed by the language. We experience everything quite differently and see the same thing differently. As a result, we interpret the text differently. Knowledge is symbolic, not realistic. We know only 'signs' through the relation of 'signifier' and the 'signified' we know only our experience, and the experience of real is not real. It is the world we perceive, and we never can translate our experience into symbolic form. 'Deconstruction thus offers us a radical vision of the activity of thinking. Our mental life consists of no concepts- not of solid, stable meanings – but of a fleeting, continually changing play of signifiers. (Tyson, 2008, 252)'. So, it is impossible to see the text in absolute objectivity. Subjectiveness is objectiveness.

'All texts are mediated (are only the process of mediation), in many ways: they are mediated by language, they are mediated by cultural systems, including ideologies and symbols, they are mediated by the conventions of genres, they are mediated by the world of intertextuality which is sexuality's only true home, they are mediated by the structure of ideas and practices which we call reading (there is no 'pure reading', there is only reading according to some tradition, for some purpose). Texts are mediated in their construction, in their communication, and in their reception. Texts cannot, by definition, simply transfer an author's ideas. Our mediated knowledge works as all signs systems work, not by identification but by differences and through codes' (Lee,2008).

Deconstruction begins from the notion that everything has " 'differance'; a systematic play of differences (Selden 1992, 388)" and it is 'being' that one thing is not another. Deconstruction assumes the structural principles of existences which are historically constructed by the interplay of individual experiences through language, symbols, environment and the oppositions. So the structures are historical, temporary, unstable, indeterminate and operating through difference and displacement. There is nothing out of the text, and we know is only text structured of signs in relationship. Opposition operates for unity of text and its meaning; presence is the largest absence, and absence is the largest presence. Deconstruction is historical in the sense that meaning is against its previous meaning claiming that it is unstable. Deconstruction views literature in the following ways:

- Literature is an institution by social, legal and political arena
- Literature speaks heart drawing meaning through 'others' and 'oneself'
- Literature is constant text but always generalizes our experiences demonstrating tensions and anti-theses

Reading literary text is not to 'decode message', but to enter into the thoughtful play of contradiction, references and infinity of human nature. Reality is only symbolic, signified and constructed. The readers / critics try to see the value –laden hierarchy or asymmetrical opposition in the text. The pairing values reverse, as, nihilism underscores logocentrism, dark underscores light, absence underscores presence. Single term can

bring number of lines, associations for different interpretations. The text is suggesting quite different ideas from its own face value. The readers ought to see self – description from self –references. As a result, the reading might be 'misreading', or conflicting reading which simplifies meaning of the text. Thus, deconstructive activity is never ending, nor limitation. 'Deconstruction is not a dismantling of the structure of a text but a demonstration that it has already dismantled itself.' (Lodge ed., 1988, 272) It does not break the house, rather it sees what has been missed in building the house.

King Lear: deconstructive reading

Shakespeare's play *King Lear* is full of archetypal images, symbols and ideas to view the man's fate. The protagonist King Lear creates a situation in the beginning of the play which leads the play to the world of uncertainty. The play is completely full of inter-textual as well as intra-textual connections and references. This makes King Lear a superb text to analyze deconstructively -- there is as much to analyze as there is to disregard, creating an entirely unique analysis. The protagonist of the play, King Lear makes for a fascinating character to deconstruct. In the play, he is mad, or at least giving the appearance that he is mentally unhinged. This means that he is producing incredible amounts of text and material that may or may not truly apply to the character. The play opens with the discussion of the king's possible step to divide the kingdom to his three daughters. Then we see Lear meeting with his court and daughters. He announces that he will divide Britain for the next generation, but for each daughter to take a share of the land, each must profess their love to their father King Lear. Goneril and Regan, the elder two daughters, ambitious and amoral, deceive their father and flatter him with honeyed lies. Cordelia however, refuses to speak. No words can describe her love for her father. But Lear, enraged, banishes Cordelia from the country, as well as Kent, his loyal Earl, for defending Cordelia. Lear's beliefs and expectations dismantle in such a way that nothing can be predicted to the fate of the old king. He demonstrates to test his three daughters' 'true' love for him and based on the expression of love to her father to his own desire. The youngest Cordelia does not exaggerate and becomes realistic and says:

Half of my love with him, half my care and duty
Sure, I shall never marry like my sisters,
To love my father all. (Act I, scene I)

Cordelia's this statement enraged old Lear and declared to banish Cordelia and divide the kingdom between Goneril and Regan. Kent, the king's faithful man, appeals to correct this decision. But the king banishes Kent too and declares to leave the kingdom in six days. Rather, Cordelia gets married with the French Prince without any parental bliss. He is ruthless to the youngest daughter and shows his unpredictable behaviour. But the King's decisions create uncertainty. This opens innumerable 'selves' or identities. Who is Lear? What does he want to be? Why does he divide his kingdom to his only two

daughters? Is he sane? Why does he banish Cordelia and Kent who were the true to love him? He deconstructs his own identities but his intentions have only possibilities. Uncertainty, indeterminacy and plurality apply in the king's declaration. Because the reader is not Lear, nor is the reader the author, the reader does not know his reasoning. It is as simple, and complex, as that. May be the king was losing his mind and he made such bewildering decision. Or the king wanted to be free in the old age taking public responsibility. Or he wanted to be valid and dutiful father who knows retirement of life. The generation shift is necessary in the family life. Or the king surrendered with the time and felt weak in the old age. So, he wanted to handover to the children so that they can fight and save the nation. Or he wanted to prevent war in the nation, diving the nation to children may not quarrel in future.

Similarly, in the sub-plot of Gloucester's tragedy, there are so many ambiguities. Like Lear, Gloucester also becomes victim of blindness and his decisions are leading the sub-plot to the vast ocean of uncertainty. Edmund's fake letter by his brother Edgar to plot against own father Gloucester has the absence of the presence. The letter does not claim as Gloucester thinks:

.....if our father
Would sleep till I waked him, you should half of his
Revenue for ever, and live the beloved of your
Brother, EDGAR. (Act I, Scene II)

This makes Gloucester reverse binary opposition true / false and hero / villains. He accepted false as 'true', true as 'false' and hero 'villain', villain 'hero'. Such reverse is analysed in deconstruction.

Lear, now, becomes a man rather than a king; his all relations are artificial, unnatural. Life becomes unnatural here. The test of love is ridiculous, love is profane and love is 'double talk'. Lear's decision reflects crisis of true love, parent- child relations and the destruction of binary opposition: blindness (inability to see the future)/ sightedness, children / parents, bastard (Edmund)/ biological child (Edgar), and it overall tries to reverse the traditional social and cultural hierarchy. King's two daughters and Edmund rebel against this traditional hierarchy. This leads the plot to the uncertainty.

When Lear starts his retirement, he is victim of treachery of his own loved daughters. Goneril starts to abuse her own father and his men. Roles of disguise are underscored in this play. Kent as peasant, Edgar as a beggar has symbolic meaning here. Kent's disguise as a peasant with pseudonym 'Caius' and starts to serve King Lear. Loved ones betrayed and betrayed ones loved. Loved ones banished, banished ones loved. Lear stops to what he ought to have seen and blindness continues to prevail in him:

Lear: What art thou?

Kent: A very honest - hearted fellow, and as poor as the king. (Act I, Scene IV)

Kent's dialogue reverses the position of the king breaking the binary. King is poor like a 'banished' citizen. Such amazing reverse can occur in the real life.

Meanwhile Fool arrives and warns the king that he made a blunder dividing his kingdom to his two daughters. Fool seems to be wise, and the king seems to be fool. So, Fool addresses to the king, 'You should not have been old till you had been wise' (Act I, Scene V.) This reversion destroys the established meaning and norms. Goneril's abuse does not cease, and king decides to live with Regan and goes there, but she, too, mistreats her father. This makes the king abandon both daughters' attachment.

Gloucester's bastard son Edmund regains power by eliminating Gloucester's real son Edgar and he has plotted to avoid old Gloucester to have absolute power and wealth. Time reverses in favour of the marginalised people like Edmund and two females Goneril and Regan. Edmund's simulated fight with Edgar fills illusion to Gloucester. The disguised Kent, who had to live with animals stock being and animal, now performs the pure duty of 'true human being,'; scolds and attacks Goneril's people, which act infuriates Regan. Gloucester, too, like King Lear, loses sanity and becomes victim of flattery. As a result, he believes Edmund, a perfect fallacy and rejects Edgar, a perfect honest and truth. Kent's and Edgar's patriotism is dismantled and put away.

King Lear has now more options, unpredictable life he is going live. He loses all his men, daughters cut off them. Lear scolds them, Gloucester requests them to give shelter to their father, but nothing happens.. All human beings are equal in the world of nature; when a person has to give up all his / her possessions. After being denied housing and shelter from the very daughters he bred, King Lear angrily rushes outside with no purpose or direction. He feels 'nothingness. He is accompanied only by the Fool and Kent, still unrecognized by the increasingly delusional King Lear. Lear wanders in the storm being insane, cursing his cruel daughters; yet Fool tells the king to use polite words to his daughters.

I have full cause of weeping, but this heart
Shall break into a hundred thousand flaws
Or ere I'll weep. O fool. I shall go mad. (Act II, Scene IV)

As inclement weather picks up, Lear's companions try to seek shelter for him, yet King Lear blindly rages on about how his own daughters have betrayed him, just as he gave them power. A powerful King with a long and successful reign over Britain with no male heirs, an elderly man, mentally unstable, and consequently seeking superficial adoration from his only family. A King used by his daughters as a stepping stone to power, and alone having alienated the only persons who love him. So, Kent seeks Lear, and manages a shelter in a 'hovel'. Then Kent requests Lear to depart to Dover, a safe place to survive. Kent builds a bridge to Cordelia delivering a ring to identify that Lear, her father, is there. We can't be certain, nor can we consult Shakespeare's context, as the only evidence we can use must come from the text itself. The most we can assume is that he is very angry at them for opposing his decision, at that very time. Gloucester, too, is blind that he sees nothing except Edmund, which ultimately loses his everything but does not see it at all. Lear's despair, confusion and struggle are chaotic. Fool makes some prophecies but what is the role of the Fool? What is meant by the Fool's strange prophecy? Maybe there was a serious threat to the British monarch. Or, maybe Fool's

sister paid no attention to him. Or, finally there was possibility of old royal family to restore.

But Goneril and Regan have unrest; evil got evil spent. Both Goneril and Regan love Edmund and both are not honest to their husbands; Cornwall and Albany. Albany reminds Edmund that they are not equals. Goneril and Regan begin to argue, both seeking Edmund's favor but it arises only uncertainty. Will both treacherous daughters be united? Whom will Edmund favour: Regan or Goneril? Will he marry one of them? Or both of them? Or none of them? Do these notorious aristocratic ladies make Edmund king betraying own husbands? It opens all possibilities here. Nothing could be guaranteed.

Gloucester arrives and meets Lear, both have alike destiny. Gloucester gets betrayed by the bastard Edmund accusing him of betraying own country and supporting France in Dover war and became conscious about his own son Edgar. Cornwall and Regan tortured Gloucester plucking eyes, servants disobey masters. So, master / servant dichotomy reverses here. Both Goneril and Regan criticize their husbands for being 'coward' and husband / wife binary opposition reverses. Albany tries to correct his wife, feels happy when Cornwall dies being injured in fighting with Gloucester. Light / darkness reverses here that the universe has only darkness and there is no possibility to bring light. Albany can do nothing here to restore light in the palace.

In Dover, Cordelia finds out that her sisters misbehaved father and his in this jungle being lunatic. He sends men and brings Lear in front of Cordelia. Lear deconstructs himself and says to Cordelia that he is no longer wise man. He found his own identity different:

Lear:

You must bear with me

Pray you now, forget and forgive: I am old and foolish. (Act IV, Scene VII)

Edgar leads Gloucester to Dover displaying his ambiguities; in which he sometimes tells lies, explains universe, and calls him gentleman. Lear and his banished daughter Cordelia meet, but it remains very brief. War begins. Albany desires to support French army, meanwhile Edgar gives letter to Albany which plots to kill him by his own wife and Edmund. Edmund is in dilemma to choose Goneril or Regan. Whom does he choose? is uncertain. She may choose Goneril, or Regan. Or, he might reject both because he is only hungry of wealth, power and social status. He might kill both sisters, or he adapts both. Or, he gets killed by Albany. Or, he will be the king of Britain. Nothing is certain here.

Similarly, success is uncertain here. Who will win in life: treachery / Edmund or disguise / Edgar and Kant? There are more moral ambiguities in the play. Will Albany punish his wife or himself? Will Cordelia fight against her sisters or against own's destiny? Again, Lear dies carrying Cordelia's dead body in his arm. He, too, dies in affliction of the loved one child. Yet, his death is quite uncertain. What is the cause of

Lear's sudden death? It might have been caused by a broken heart, or his old age, or his madness finally catch foolising up to him. Due to the deconstruction theory and the ambiguity of King Lear however, readers will never know the true reason behind Lear's death and Edmund's final act. Why did Edmund execute Cordelia? This may have happened for a number of reasons. It could be because Cordelia was seen as a threat to Edmund, or Cordelia was the only sister who wasn't willing to sacrifice family for power, or he may have been jealous that she was the only one not in love with him. It may also have been a final act of power over their family. Similarly, why did Albany take this serious matter so easily? Nothing is guaranteed behind the motivations of these acts. We cannot alter the things, leave it as it is. Despite several disguises for living, Kent still has a long journey to go into the uncertainty. What happens next, we can only guess. So, Kent says in the final utterance to Albany:

I have a journey, sir, shortly to go
My master calls me, I must not say no. (Act V, Scene III)

Conclusion

When we see King Lear from the perspectives of deconstructive lens, we perceive many fragmentations, alienations, marginal truths and the rupture of binary oppositions. The oppositions like past and the present, parent and child, wisdom and foolishness, innocence and decadence, powerful and powerless, light and dark etc help us to read it in the deconstructive angle. King Lear is disillusioned at last and felt guilty that he was protected by those whom he had put under the dust. Edmund's villainy is unpredictable till last. Both Lear and Edmund represent the world of spiritual decay this play mourns end of spiritualism and humanism. Lear's, Kent's, Edgar's, Fool's and Gloucester's alienation, frustration and innocence have a big role here. They lose stable past and they start to face unstable present and uncertain future. Everyone's expectations are impossible to be met and they disintegrate life from beautiful integration; known as tragedy. Lear's all actions have uncertainty, having no clear motivation. As a result, he is complex to predict the consequences of his actions. What is previously stated is not authentic. Every phenomenon reverses going binary oppositions: child / parent, woman / man, dark / light, fool / wise, servant / master, betray / support etc.

So, Lear has ambivalence to ideologies, his ideology is deconstructed by his romanticized ambitions of retirement. His ambiguities create unsolvable problems in the kingdom. Edmund, Regan, Lear and Goneril's desire are romanticized. Their dreams mired and they represents opposing world. Lear cannot be separated from the pleasure of flattery, Regan and Goneril from accumulating power, wealth and extra- marital affair. Tragic flaw or error of judgment of the protagonist is motivated by the innumerable reasonings which cannot be speculated. The inter- textual objective analysis of the text provides some hints through the figurative language. Text is made

up of language and everything is within the language. Language produces experiences, culture, ideologies and the world identities. We perceive the world as we see in the language; as a result the world is unstable, fragment, indeterminate, uncertain and plural. Conversion of dichotomy is found in deconstruction.

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A STUDY OF THE EFFECTIVENESS OF INSTANT CORRECTION TECHNIQUES - A PRACTICAL STUDY

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Abstract

This paper, based on my thesis “The Instant versus Delayed Correction Technique in Teaching Writing” which was carried out in partial fulfillment of the Master Degree in Education (Specialization in English) in 2004, presents the result of an action research on the effectiveness of instant correction technique to correct English writing. Thirty students of grade XI studying at Damak Multiple Campus, Jhapa, were the sample population of this research work. The research was to find out which correction technique (either instant or delayed) is more effective for the correction of writing. This paper is divided into five chapters- general introduction, procedure, analysis and interpretation, finding, and recommendation. The researcher comes to the final conclusion that instant correction technique is found to be more effective than delayed correction technique. Thus, it is strongly recommended that the syllabus designers, methodologist and authority concerned should encourage the instant correction technique to correct writing.

Keywords: effectiveness, instant, delayed, correction, students

Introduction

Teaching English (compulsory as well as optional in proficiency and bachelor level) for more than two decades, I have encountered with many problems which always confused me to deal with the problems of students. Correction of errors in writing, one of the problems faced in classroom, has often struck me whether to correct errors of students' writing or not. Regarding the view of correction of errors, there are two opposite views. The first view holds that errors need not be corrected by teachers. What he should do is to make them correct errors. Re-teaching of erroneous area which ensures the better teaching and language use is more important than mere correction. On the other hand, the second view pleads for the correction of errors. If the errors are neglected, learners who commit errors are unaware of the wrong use of language and they go on making errors. So this view strongly pleads for the proper correction. Again two views emerge. Some are in the opinion that all the errors committed by learners should be corrected. The second view forcefully urges that only those errors which cause major problem in language are to be corrected. “The most important sort of mistake is a mistake that leads to the misunderstanding” says Edge (1992). Thus, basically responsibility of correction errors goes mainly to the hands of teachers. Although teacher correction of learner's error is helpful to many students, there is still another query emerging – When should learner's error be corrected? Regarding the time and situation of teacher correction, two techniques—instant correction and delayed correction techniques-- are in practice. But still there is confusion which one—either

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instant or delayed correction- is used to correct students' errors in English class. Now it is essential to find the usefulness between the instant and delayed correction technique in English class. Thus, this paper actually describes the instant versus delayed correction technique in teaching writing. And this paper presents the effectiveness of instant correction technique over delayed correction technique.

Procedure

The researcher applied the following stepwise procedure for data elicitation.

1. A written pre-test was taken to determine the students' proficiency. The answer sheets were corrected, summed up and tabulated.
2. On the basis of the errors of the pre-test, they were ranked from the lowest to highest numbers of errors committers.
3. They were divided into two groups, Group A and Group B, consisting of 15 students in each group on the basis of odd-even ranking of individual error. The researcher taught 22 lessons with each lesson plan. Then, he made them write composition in 120 words. He provided correction instantly for Group A after completing the written work in the same day. Group B, on the other hand, received their corrected answer sheets every two days later.

Note: Only mechanical errors that include punctuation marks (like full stop, question mark, exclamation mark, comma and capital letter) and spelling were corrected. Likewise verbal errors and grammatical errors (like SVA, preposition and article) were corrected in both groups.

4. In this way, each group was taught at least 22 lessons for four weeks. They were taught seven days a week; i.e. one period a day whereas Group A attended another period for correction and each period lasted for forty-five minutes.
5. After 22 lessons, the post-test was administered and the errors committed by individual were compared with the errors of pre-test using the statistical tools as well as description to determine the relative effectiveness of the two techniques for teaching of writing.

Analysis and Interpretation

This chapter focuses on the analysis and interpretation of data that attempts to show the comparison and contrast of data between instant and delayed correction. The data have been grouped under the following headings and they have been analyzed separately.

1. Item wise comparison
2. Gender wise comparison
3. Holistic comparison.
- 3.1 Item wise comparison

The individual errors of the both tests (pre-test and post-test) of each heading were tabulated and the errors of the post-tests were subtracted from the errors of the pre-test. The difference was converted into percentage. And at last the average errors of the two groups were compared and contrasted on the basis of the finding.

Table 1: Item wise Comparison

Item	Group	Average Error in Pre-test	Average Error in Post-test	Difference	Difference in %	Remarks
a) Punctuation	A	5.66	3	2.66	46.99	better
	B	7.933	6.53	1.4	17.65	-
b) Spelling	A	17.86	13.66	4.2	23.51	better
	B	16.4	13.66	2.74	16.70	-
c) Tense	A	12.86	11.4	1.46	11.35	better
	B	12.26	11.6	0.66	5.38	
d) SVA	A	0.4	0.13	0.27	67.5	better
	B	0.53	0.66	-0.13	-24.52	-
e) Preposition	A	3.46	2.6	0.86	24.85	better
	B	2.93	2.46	0.47	16.04	-
f) Article	A	2.2	2.06	0.14	6.36	better
	B	2.6	2.6	0	0	

3.1.1 The item-(a) shows that Group A has the average error of 5.66 in the Pre-test and 3 in the Post-test. It means this group has decreased its average error by 2.66 or 46.99%. Group B has the average error of 7.93 and 6.53 in the Pre-test and Post-test respectively. This group has decreased its error in punctuation by 1.43 or 18.02%. It shows that the decrease of mistake of the former group is greater than that of the latter. It means Group A improved their efficiency more effectively than Group B.

3.1.2 The item-(b) shows that Group A has the average error of 17.86 in the Pre-test and 13.66 in the post-text. It means this group has decreased its average errors by 4.21 or 23.51 %. Group B, on the other hand, has the average error of 16.4 in the pre-test and 13.66 in the post-test. This group has decreased its error in spelling by 2.74 or 16.70 %. The difference between percentage of Group A and Group B clearly proves that Group A is comparatively better than Group B on the basis of the performance of post-test.

3.1.3 The item-(c) shows that the average error of Group A is 12.86 in the pre-test and 11.4 in the post-test. It means this group has decreased its average error by 1.46 or 11.35 %. Group B has the average error of 12.26 in the pre-test and 11.6 in the post-test. This group has decreased its error by 0.66 or 5.38%. It shows that Group A did slightly better in their performance in the post-test in comparison with Group B

13.1.4 The item-(d) shows that the average error of Group A is 0.4 in the pre-test and 0.13 in the post-test. It means this group has decreased its average error by 0.27 or 67.5%. Group B has the average error of 0.53 in the pre-test and 0.66 in the post-test. In other words, this group committed more errors increasing its average error by -0.13 or -24.52 %. The difference between the percentage of Group A and Group B clearly shows that Group A is comparatively far better than Group B comparing the errors of two tests.

3.1.5 The item (e) shows that the average error of Group A is 3.46 in the pre-test and 2.6 in the post-test. In other words, this group has decreased its average error by 0.86 or 24.85 %. Group B has the average error of 2.93 in the pre-test and 2.46 in the post-test. It means this group has decreased its error by 0.47 or 16.04 %. Comparing and contrasting the average difference in percentage between Group A and Group B, it is concluded that Group A learned preposition better than the Group B.

3.1.6 The item (f) shows that the average error of Group A is 2.2 in the pre-test. It is 2.06 in the post-test. It means this group has decreased its average error by 0.14 or 6.26 %. The average error of Group B is 2.6 in the pre-test and the same average in the post-test also. In other words this group has not decreased its error. It remained in the same position. It shows that the percentage of decrease of error of Group A is greater than group B.

Gender wise Comparison

In this comparison the whole population of the study was divided into two categories, i.e. boys and girls. There were 15 boys and 15 girls and they were all divided into two groups. According to gender wise division, there were 7 girls in Group A and 8 in Group B. The average error of the girls between Group A and Group B in their performance in the pre-test and post-test was compared and contrasted to find out which technique is better for correction of errors. Likewise the average error of the remaining 8 boys of Group A and 7 boys of Group B in the performance in the pre-test and post-test was compared and contrasted to find out appropriate technique for correction of errors

3.2.1 Girls: The population of girls involved in the experimental teaching was fifteen. Accordingly seven were in Group A and eight in Group B. The following table shows item wise comparison and contrast of the girls of each group.

Table-2 Gender wise Table: Girls

Item	Group	Average Error in Pre-test	Average Error in Post-test	Difference	Difference in %	Remarks
Punctuation	A	6.57	3.42	3.15	47.94	better
	B	7	8.5	-1.5	-21.42	-
Spelling	A	19.71	15.85	3.86	19.58	better
	B	12.5	13.87	-1.37	-10.96	-
Tense	A	13.85	11.42	2.43	17.54	better
	B	13.87	12.75	1.12	8.07	
SVA	A	0.57	0.28	0.29	50.87	better
	B	0.25	1	-0.75	-300	-
Preposition	A	01.85	2.28	-0.43	-23.24	-
	B	2.25	2.37	-0.12	-5.33	-
Article	A	2	1.28	0.72	36	better
	B	2.62	1.85	0.77	29.38	

The above chart shows that Group A decreased the average error in punctuation by 3.15 or 47.94%, in spelling by 3.86 or 19.58%, in tense by 2.43 or 17.54%. Likewise this group had a decrease in SVA and in article by 0.29 or 50.87% and 0.72 or 36% respectively. The Group B decreased the average error in tense by 1.12 or 8.07%, and in article 0.77 or 29.38%. However, Group A increased the average error in preposition by -0.43 or -23.24%. Group B unfortunately increased the error in punctuation by -1.5 or -21.42%, in spelling by -1.37 or -10.96%, in SVA by -0.75 or -300% and in preposition by -0.12 or -5.33%.

So far as the comparison and contrast of instant and delayed correction techniques are concerned, the Group A is relatively better than Group B in their performance in punctuation, tense, spelling, SVA, and article. So far as the correction of preposition is concerned in girls' class, both techniques are found to be ineffective to improve the performance of the students.

3.2.2 Boys: The population of the boys involved in pre-test and post-test was fifteen. Out of them eight boys were in Group A and seven boys in Group B. The following table shows item wise comparison and contrast of the boys of each group.

Table- 3 Gender wise Table: Boys

Item	Group	Average Error in Pre-test	Average Error in Post-test	Difference	Difference in %	Remarks
Punctuation	A	4.87	2.62	2.25	46.20	-
	B	9	4.28	4.72	52.44	better
Spelling	A	16.25	11.75	4.5	27.69	-
	B	20.85	13.42	7.43	35.63	better
Tense	A	12.25	11.37	0.88	7.18	better
	B	10.42	10.28	0.14	1.34	
SVA	A	0.25	-	0.25	100	better
	B	0.85	0.28	0.57	67.05	-
Preposition	A	4.87	2.87	2	41.06	better
	B	3.71	2.57	1.14	30.72	
Article	A	2.37	2.75	-0.38	-16.03	
	B	2.57	3.42	-0.85	-33.07	

The above chart shows that Group A decreased the average error in punctuation by 2.25 or 46.20%, in spelling by 4.5 or 27.69%, in tense 0.88 or 7.18%. Likewise this group decreased the average errors in SVA, and preposition by 0.25 or 100% and 2 or 41.06% respectively.

Group B decreased the average error in punctuation by 4.22 or 52.44%, in spelling by 7.43 or 35.63%, in tense 0.14 or 1.34%. Likewise this group had a decrease in SVA by 0.57 or 67.05%, and in preposition by 1.14 or 30.72%. The table shows that in article Group A decreased the average error by -0.38 or -16.03% and Group B by -0.85 or -33.07%.

So far as the comparison and contrast of instant and delayed correction techniques are concerned, the Group A is relatively better than Group B in their performance in tense, SVA and preposition. On the other hand, Group B performed better than Group A in punctuation and spelling.

Holistic Comparison

The following comparative chart shows difference in percentage of the average decrease percentage of Group A and Group B.

Table- 4: Holistic Comparison

Item	Group A	Group B
Punctuation	46.99	17.65
Spelling	23.51	16.70
Tense	11.35	5.38
SVA	67.5	-24.52
Preposition	24.85	16.04
Article	6.36	0
Total decrease percentage	180.56	31.25
Average decrease percentage	30.09	5.20

The above chart shows that the average decrease percentage of Group A is 30.09 whereas Group B has 5.20. The difference percentage between the average decrease percentage of two groups clearly shows that Group A did comparatively better than Group B on the whole.

Findings

Having completed the comparison between the instant and delayed correction techniques in the teaching of writing, the focal point of this study has now come to the significant conclusion to find out which technique is more effective for correction of errors in the written performance of XI grader.

The study seems to be very practical since it dealt with day to day problem faced by both the teacher and his students in English classroom. This comparative study between instant and delayed correction techniques of error correction made us show the following findings on the basis of the analysis and interpretation of data obtained.

Table wise finding is given as follows:

- 4.1 Item 1 of Table one (Punctuation) shows that Group A decreased its errors by 46.99% leaving a wide gap with Group B that decreased its error by 17.65%. The difference percentage between the decreased errors of each group reveals that instant correction technique is far better than delayed correction technique to correct the errors of punctuation in writing.
- 4.2 Item 2 of Table one (Spelling) shows that Group A decreased its error by 23.51% leaving a gap with Group B that decreased its errors by 16.70 % in the post-test. It shows that instant correction technique is relatively better than delayed correction technique to correct the errors of spelling in writing.

- 4.3 Item 3 of Table One (Tense) shows that Group A decreased its error by 11.35% leaving a gap with Group B that decreased its errors by 5.38 %. The difference between the decreased percentage of each group shows that instant correction technique is more effective than delayed correction technique to correct the errors of tense.
- 4.4 Item 4 of Table One (Subject-Verb Agreement) shows that Group A decreased its errors by 67.5 % leaving a wide gap with Group B that decreased its error by - 24.52 %. It means Group B increased its error. The difference between the decreased percentage in each group clearly shows that instant correction technique is far better than delayed correction technique to correct the errors of subject-verb agreement.
- 4.5 Item 5 of Table One (Preposition) shows that Group A decreased its error by 24.85 % leaving a gap with Group B that decreased its error by 16.04 %. The difference between the decreased percentage of two groups clearly shows that instant correction technique is found to be better than delayed correction technique to correct the errors of preposition.
- 4.6 Item 6 of Table One (Article) shows that Group A decreased by 6.36 % whereas Group B remained in the same condition (neither increased nor decreased). The difference between the decreased percentage of two groups clearly shows that instant correction technique is found to be better than delayed correction technique to correct the errors of article in writing.
- 4.7 Table Two (Table of Girls) shows that Group A decreased its average percentage in punctuation, spelling, tense, SVA and article. The students of Group A learnt relatively more than the students of Group B in these items. Regarding the correction of preposition in girls' group, both instant and delayed correction techniques are found to be ineffective to improve the students proficiency in preposition.
- 4.8 Table Three (Table of Boys) shows that instant correction technique is more effective than delayed correction technique to correct the errors of tense, SVA and preposition. The delayed correction technique, on the other hand, is more effective than instant correction technique to correct punctuation, and spelling only in boys' group.
- Regarding the correction technique of article, both instant and delayed correction techniques are found to be ineffective to improve the students' proficiency in article.
- 4.9 Table four (Table of Holistic Comparison) shows that average decrease percentage of Group A is 30.09 whereas Group B has 5.20 . The difference between the average decrease percentages of each group proves that instant correction technique is better than delayed correction technique to correct the errors of students on the whole.

In this study the students of Group A, whose works were corrected instantly, were found more active and curious in classroom while teaching writing in comparison with the students of group B, whose works were corrected and returned every two days.

In this way, the researcher comes to the final conclusion that instant correction technique is found to be more effective, more meaningful and more significant than delayed correction technique to correct errors committed by XI grader

Recommendations

On the basis of the findings of the research, the following recommendations have been suggested for pedagogical implications.

- 5.1 The instant correction technique is more effective then delayed correction technique to correct the errors of writing. This implies that instant correction technique should be used for correction of errors in writing.
- 5.2. On the basis of this study, it is strongly recommended that the syllabus designers, methodologists and the authority concerned should encourage the instant correction technique to correct writing.
- 5.3. Finally, it is strongly recommended that instant correction should be applied to develop overall proficiency in writing.

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AN INTRODUCTION TO PARTIAL DIFFERENTIAL EQUATIONS AND NUMERICAL METHODS

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Abstract

Partial differential equations arise in formulations of problems involving functions of several variables such as the propagation of sound or heat, electrostatics, electrodynamics, fluid flow, and elasticity, etc. The present paper deals with a general introduction and classification of partial differential equations and the numerical methods available in the literature for the solution of partial differential equations.

Keywords: partial differential equations, initial and boundary conditions, eigenvalues, finite difference method.

Introduction

An equation involving derivatives or differentials of one or more dependent variables with respect to one or more independent variables is called a differential equation. The study of differential equations is a wide field in pure and applied mathematics, physics, meteorology, and engineering, etc. All of these disciplines are concerned with the properties of differential equations of various types. Pure mathematics focuses on the existence and uniqueness of solutions, while applied mathematics emphasizes the rigorous justification of the methods for approximating solutions. Differential equations play an important role in modeling virtually every physical, technical, or biological process, from celestial motion, to bridge design, and interactions between neurons. Differential equations which are used to solve real-life problems may not necessarily be directly solvable, that is, do not have closed form solutions. Instead, solutions can be approximated using numerical methods. Mathematicians also study weak solutions (relying on weak derivatives), which are types of solutions that do not have to be differentiable everywhere. This extension is often necessary for solutions to exist, and it also results in more physically reasonable properties of solutions, such as possible presence of shocks for equations of hyperbolic type. The theory of differential equations is quite developed and the methods used to study them vary significantly with the type of the equation.

A differential equation involving derivatives with respect to single independent variable is called an ordinary differential equation. In the simplest form, the dependent variable is a real or complex valued function, but more generally, it may be vector valued or matrix valued: this corresponds to considering a system of ordinary differential equations for a single variable. Ordinary differential equations are classified according

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to the order of the highest derivative of the dependent variable with respect to the independent variable appearing in the equation. The most important cases for applications are first order and second order differential equations. In the classical literature, the distinction is also made between differential equations explicitly solved with respect to the highest derivative and differential equations in an implicit form.

A differential equation involving partial derivatives with respect to two or more independent variables is called partial differential equation. The partial differential equations can also be classified on basis of highest order derivative. Some topics in differential geometry as minimal surfaces and imbedding problems, which give rise to the Monge Ampere equations, have stimulated the analysis of partial differential equations, especially nonlinear equations. Moreover, the theory of systems of first order partial differential equations has a significant interaction with Lie theory and with the work of E. Cartan. Until the 1870, the study of partial differential equation was mainly concerned with heuristic methods for finding solutions of boundary value problems as well as explicit solutions for particular problem.

Poincaré [2] gave the first complete proof of the existence and uniqueness of a solution of the Laplace equation for any continuous Dirichlet boundary condition in 1890. In a fundamental paper of, Poincare [3] established the existence of an infinite sequence of eigenvalues and corresponding eigen functions for the Laplace operator under the Dirichlet boundary condition. Picard applied the method of successive approximation to obtain solutions of nonlinear problems which were mild perturbations of uniquely solvable linear problems. The construction of elementary solutions and Green's functions for general higher order linear elliptic operators was carried through to the analytic case by E. E. Levi [4]. Up to about 1920's solutions of partial differential equations were generally understood to be classical solutions, that is C^k , for a differential operator of order k .

Keeping in view the requirement of the new researchers, the present paper describes the basic fundamentals of partial differential equations which has been collected from a large number of research articles published in reputed journals and literature available in the books with the intension to provide all important relevant material in a condensed form related to partial differential equations and numerical methods for their solutions. Also, since analytical and computational solution of partial differential equations is the major concern from the early years, this paper gives a small step towards the development of computational analysis of partial differential equations, which have lot of utilization in the field of science and engineering.

Classification of Partial Differential Equations

Both ordinary and partial differential equations are broadly classified as linear and nonlinear. A linear partial differential equation is one in which all of the partial derivatives appears in linear form and none of the coefficients depends on the dependent variables. The coefficient may be function of the independent variables. A non linear partial differential equation can be described as a partial differential equation involving nonlinear terms.

Types of Non-Linear Partial Differential Equations

The non linear partial differential equations describe many different physical systems, ranging from gravitation to fluid dynamics and have been used in mathematics to solve problems such as Poincare conjecture and Calabi conjecture. A non linear partial differential equation is known as semi linear if it is linear in highest order derivatives and the coefficients of highest order derivatives depend only on independent variables.

A nonlinear partial differential equation is known as quasi linear if it is linear in highest order derivatives and the coefficients of highest order derivatives depend on independent variables as well on smaller order derivatives.

A partial differential equation is known as non linear if the coefficients depends on dependent variable or the derivatives appear in nonlinear form.

Example 2.1

$f_{xx} + f_{yy} + f_x + f_y = f + xy$ is a linear equation.

$a f_{xx} + b f_{yy} + f_x^2 + f_y = c$ is a semi linear equation.

$f_x f_{xx} + f_y f_{yy} + f_x^2 + f = 0$ is a quasi linear equation.

$f f_{xx} + f_{yy} + a f_x + b f_y = 0$ is a non linear equation,

where a, b are functions of x, y and c is function of x, y and f .

But further classification into elliptic, hyperbolic, and parabolic equations, especially for second order linear equations, is of utmost importance.

Classification Based on Discriminant

The eneral second order non homogeneous partial differential equation in two independent variable is

$$a f_{xx} + b f_{xy} + c f_{yy} + d f_x + e f_y + g f = k.$$

The classification of partial differential equations depends on the sign of discriminant as follow:

- If $b^2 - 4ac > 0$, the partial differential equation is hyperbolic.
- If $b^2 - 4ac = 0$, the partial differential equation is parabolic.
- If $b^2 - 4ac < 0$, the partial differential equation is elliptic.

Eigenvalue Based Classification of Partial Differential Equations

Since method for classification of partial differential equations fails if it is partial differential equation in three or more independent variable then we are not able to find discriminant. Let us consider a general second order partial equation in n independent variables

$$a_{11} u_{x_1 x_1} + a_{12} u_{x_1 x_2} + \cdots + a_{1n} u_{x_1 x_n} +$$

$$\begin{aligned}
& a_{21}u_{x_2x_1} + a_{22}u_{x_2x_2} + \cdots + a_{21}u_{x_2x_n} + \\
& \vdots \quad \quad \quad \vdots \quad \quad \quad \vdots \quad \quad \quad + \\
& a_{n1}u_{x_nx_1} + a_{n2}u_{x_nx_2} + \cdots + a_{nn}u_{x_nx_n} + \\
& b_1u_{x_1} + b_2u_{x_2} + \cdots + b_nu_{x_n} + cu = 0.
\end{aligned}$$

This can be written as

$$\sum_{i=1}^n \sum_{j=1}^n a_{ij} \frac{\partial^2 u}{\partial x_i \partial x_j} + \sum_{i=1}^n b_i u_{x_i} + cu = 0.$$

Then coefficient matrix of highest order derivatives is $A = [a_{ij}]$. Let λ be an eigenvalue of A corresponding to eigenvector X . Then

$$AX = \lambda X.$$

$$\text{i.e.} \quad AX - \lambda X = 0.$$

$$\text{i.e.} \quad (A - \lambda)X = 0.$$

Since $\|X\| \neq 0$, we must have

$$\begin{aligned}
& |A - \lambda| = 0. \\
\Rightarrow & \begin{vmatrix} a_{11} - \lambda & a_{12} & \cdots & a_{1n} \\ a_{21} & a_{22} - \lambda & \cdots & a_{2n} \\ \vdots & \vdots & \ddots & \vdots \\ a_{n1} & a_{n2} & \cdots & a_{nn} - \lambda \end{vmatrix} = 0.
\end{aligned}$$

This is the characteristic equation which will have n roots as n eigenvalues. The classification of the differential equation based on eigenvalues is as follows:

- If any eigenvalue is zero, then partial differential equation is parabolic.
- If all eigenvalues are non-zero and one eigenvalue has opposite sign, then partial differential equation is hyperbolic.
- If all eigenvalues are nonzero having same sign, then partial differential equation is elliptic.

Example 2 Consider the following differential equation of follows:

$$(1 - M_\infty^2) \frac{\partial^2 \phi}{\partial x^2} + \frac{\partial^2 \phi}{\partial y^2} = 0,$$

where M_∞ is Mac number.

- First we characterize by discriminant.

Comparing the equation with general equation, we get

$$a = (1 - M_\infty^2), \quad b = 0 \text{ \& } c = 1.$$

Then,

$$b^2 - 4ac = -4(1 - M_\infty^2).$$

- If flow is subsonic i.e. $M_\infty < 1$, then $b^2 - 4ac < 0$, the equation of flow is elliptic.
- If flow is sonic i.e. $M_\infty = 1$, then $b^2 - 4ac = 0$, the equation of flow is parabolic.
- If flow is supersonic i.e. $M_\infty > 1$, then the equation of flow is hyperbolic.

b. Next, we characterize by eigenvalues.

Here
$$A = \begin{pmatrix} 1 - M_\infty^2 & 0 \\ 0 & 1 \end{pmatrix}.$$

Then,

$$|A - \lambda I| = 0.$$

$$\Rightarrow \begin{vmatrix} (1 - M_\infty^2 - \lambda) & 0 \\ 0 & 1 - \lambda \end{vmatrix} = 0.$$

$$\Rightarrow \lambda = 1 \text{ \& } (1 - M_\infty^2).$$

- a. If $M_\infty < 1$, then all eigenvalues are nonzero and of same sign, thus equation of flow is elliptic.
- b. If $M_\infty = 1$, then all eigenvalues are zero, thus equation of flow is parabolic.
- c. If $M_\infty > 1$, then all eigenvalues are nonzero and of one eigenvalue of opposite sign thus equation of flow is hyperbolic.

Significance of Classification

The classification of a partial differential equations is intimately related to the characteristics of the partial differential equations. The characteristics are $(n - 1)$ dimensional hypersurfaces in n dimensional hyperspace that have some very special features. In two-dimensional space, which is the case considered generally, characteristics are paths in the solution domain along which information propagates. In other words we can say information propagates throughout the solution domain along characteristics.

Classification by Physical Problems

Physical problems falls into one of the following general classification:

- a. Equilibrium Problem;
- b. Propagation Problem;
- c. Eigenvalue Problem.
- d.

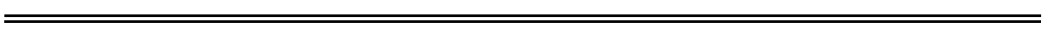
Equilibrium Problem

Equilibrium problems are steady state problems in closed domain $D(x, y)$ in which the solution $f(x, y)$ is governed by an elliptic partial differential equations subject to boundary conditions specified at each point on the boundary B of the domain. Such type of problems have no real characteristic and thus the solution at every point in the solution domain is influenced by the solution at all other points and the solution at each points influence the solution at all other points. Equilibrium problems are solved by method of relaxation numerically.

Propagation Problem

Propagation problems are initial value problems in open domains. Here open domain means open with respect to one of the independent variables.

Example



$$f_t = \alpha f f_x \text{ with initial condition } f(x, t_0) = f(x).$$

Eigenvalue Problem

Eigenvalue problem are special problems in which the solution exists only for special values (*i.e.* eigenvalues) of a parameter of the problem. The eigenvalues are to be determined in addition to the corresponding configuration of the system.

Types of Conditions

Initial Value Problem

An initial value problem is one in which the dependent variable and possibly its derivatives are specified initially or at the same value of independent variable in the equation. Initial value problems are generally time-dependent problems.

Boundary Value Problems

A boundary value problem is one in which the dependent variable and possibly its derivatives are specified at the extreme of the independent variable. For steady state equilibrium problems, the auxiliary conditions consist of boundary conditions on the entire boundary of the closed solution domain. There are three types of boundary condition.

Dirichlet boundary condition

The value of the function is specified on the boundary. The dependent variable of the partial differential equation are prescribed in domain at different points. For example if an iron rod had one end held at absolute zero then the value of the problem would be known at that point in space. A Dirichlet boundary condition imposed on an ordinary or a partial differential equation specifies the values of a solution at the boundary of the domain. The question of finding solutions to such equations is known as the Dirichlet problem. For example, the boundary condition $u(t, 0) = 0 = u(t, l)$.

Neumann boundary condition

The value of derivative normal to the boundary ($\frac{df}{dn}$ is specified on the boundary). For example if one iron rod had heater at one end then energy would be added at a constant rate but the actual temperature would not be known. A Neumann boundary condition imposed on an ordinary or a partial differential equation specifies the derivative values of a solution at the boundary of the domain. For example

Mixed boundary condition

The linear combination of Dirichlet and Neumann boundary condition is specified on the boundary. Mixed boundary conditions are also known as Cauchy boundary condition. A Cauchy boundary condition imposed on an ordinary or a partial differential equation specifies both the values a solution of a differential equation at the boundary of the domain and the normal derivative at the boundary.

Various Methods for Solving Partial Differential Equation

In literature various method exists for solution of partial differential equations. Here we will discuss some of them briefly as following:

Finite Difference Method

The finite difference method is a numerical procedure which solves a partial differential equation by discretizing the continuous physical domain into a discrete finite difference grid, approximating the individual exact partial derivatives in the partial differential equations by algebraic finite difference approximations (*i.e.* FDA), substituting the FDA's into the partial differential equations to obtain an algebraic finite difference equation (FDE) and solving the resulting algebraic finite difference equations for the dependent variable.

Finite Volume Method

The finite volume method is a method for representing and evaluating partial differential equations in the form of algebraic equations. Similar to the finite difference method, values are calculated at discrete places on a meshed geometry. "Finite volume" refers to the small volume surrounding each node point on a mesh. In the finite volume method, volume integrals in a partial differential equation that contain a divergence term are converted to surface integrals, using the divergence theorem. These terms are then evaluated as fluxes at the surfaces of each finite volume. Because the flux entering a given volume is identical to that leaving the adjacent volume, these methods are conservative. The method is used in many computational fluid dynamics packages

One advantage of the finite volume method over finite difference methods is that it does not require a structured mesh (although a structured mesh can also be used). Furthermore, the finite volume method is preferable to other methods as a result of the fact that boundary conditions can be applied non-invasively. This is true because the values of the conserved variables are located within the volume element, and not at nodes or surfaces. Finite volume methods are especially powerful on coarse non-uniform grids and in calculations where the mesh moves to track interfaces or shocks.

Finite Element Method

The finite element method, where functions are represented in terms of basis functions and the partial differential equations is solved in its integral form. In the finite element method (FEM) the domain Ω is partitioned in a finite set of elements $\{\Omega_i, i \in N\}$, so that $\Omega_i \cap \Omega_j = \emptyset, i \neq j$ and $\bigcup_{i \in N} \overline{\Omega_i} = \overline{\Omega}$. Usually one takes triangles or quadrangles for each Ω_i . Then the function is approximated by

$$u_h = \sum a_i \gamma_i(x),$$

where $\gamma_i(x)$ are continuous polynomials of a low degree in x (piecewise polynomials). Further they are constructed so that their support extends only over a small number of elements.

Now we will give detail discussion of Finite difference method.

Introduction to Finite Difference Method

The finite difference method is a numerical method and is more general and powerful in its application to real-world problems that involve complicated physical geometry and boundary conditions. In FDM, a given domain is sectioned as a collection of sub-

domains and over the vertices (called grid points) of each sub-domain, a discrete function ϕ is defined that can approximate the given function at the grid points. Then the governing equation (i.e. PDE) is transformed into an ODE by the help of the smooth discrete function ϕ . It is useful to mention that the discrete function ϕ can approximate the given function only at the grid points of the sub-domain but not somewhere in the middle of the sub-domain. The ODE so obtained is then solved and a solution will be obtained. This will be taken as the approximate solution of the given PDE at these grid points. The approximation of the solutions on a collection of grid points has great advantages in mathematics because the nature of the solution of the complicated functions are known at least at the grid points. This may open our path for further work in many real fields. The method is characterized by three features:

- The domain of the problem is represented by a collection of grid points or nodes called grid.
- Over each grid point, the physical process is approximated by functions of the desired type and algebraic equations relating physical quantities at the nodes are developed.
- The equation is assembled using “balance” of physical quantities.

In FDM, we seek an approximation u_n of u in the form

$$u_n = \sum_{j=1}^n u_j \psi_j + \sum_{j=1}^n c_j \phi_j,$$

Where u_j 's are the values of u_n at the element nodes ψ_j 's are the interpolation function and c_j 's are coefficients that are not associated with nodes. Direct substitution of the such approximation into the governing differential equation does not always result, for an arbitrary choice of the data of the problem, in a necessary and sufficient no. of equations for the under determined coefficients u_j and c_i . Therefore a procedure whereby a necessary and sufficient number of equations can be obtained is needed.

There are many finite difference schemes (models) which we discuss briefly as below.

Grid Points and Discrete Function

To begin with the finite difference schemes, we first define grid of points in the (t, x) plane. Let h and k be positive numbers; then the grid will be the set of points $(t_n, x_m) = (nh, mk)$ for arbitrary integers n and m . For a smooth function v defined on the grid point, we write v_m^n for the value of v at the grid point (t_n, x_m) where $n = 0, 1, 2, \dots, N$ and $m = 0, 1, 2, \dots, M$. We also use the notation u_m^n for $u(t_n, x_m)$ when u is defined for continuously varying (t, x) . The set of points (t_n, x_m) for a fixed value of n is called grid level n . We are interested in grids with small values of h and k . The basic idea of finite difference schemes is to replace derivatives by finite differences. This can be done in many ways; for this let $u(t, x)$ be a solution to the differential equation $u_t + au_x = 0$, then we want to find v_m^n that approximates $u(t_n, x_m)$. That means we want to find v_m^n such that $v_m^n \approx u(t_n, x_m)$. Now we replace the derivative of $u(t_n, x_m)$ by finite difference as

$$u_t(t_n, x_m) = \frac{u(t_n+k, x_m) - u(t_n, x_m)}{k} = \frac{v_m^{n+1} - v_m^n}{k}.$$

It is defined on the basis of forward time. similarly on the basis of forward space, we can write

$$u_t(t_n, x_m) = \frac{u(t_n, x_m+h) - u(t_n, x_m)}{h} = \frac{v_{m+1}^n - v_m^n}{h}.$$

These are valid approximations that can be seen from the formulas

$$u_t(t_n, x_m) = \lim_{k \rightarrow 0} \frac{u(t_n, x_m+h) - u(t_n, x_m)}{k} \quad \text{and} \\ u_t(t_n, x_m) = \lim_{k \rightarrow 0} \frac{u(t_n+k, x_m) - u(t_n-k, x_m)}{2k}.$$

Consider a differential equation

$$u_t + au_x = 0. \quad (1)$$

Using these approximations, we obtain the following five finite difference schemes for equation (1).

- a. Forward time forward space scheme

$$\frac{v_m^{n+1} - v_m^n}{k} + a \frac{v_{m+1}^n - v_m^n}{h} = 0.$$

- b. Forward time backward space scheme

$$\frac{v_m^{n+1} - v_m^n}{k} + a \frac{v_m^n - v_{m-1}^n}{h} = 0.$$

- c. Forward time central space scheme

$$\frac{v_m^{n+1} - v_m^n}{k} + a \frac{v_{m+1}^n - v_{m-1}^n}{2h} = 0.$$

- d. Leapfrog or central time central space scheme

$$\frac{v_m^{n+1} - v_m^{n-1}}{2k} + a \frac{v_{m+1}^n - v_{m-1}^n}{2h} = 0.$$

- e. Lax-Friedrich's scheme

$$\frac{v_m^{n+1} - \frac{1}{2}(v_{m+1}^n - v_{m-1}^n)}{k} + a \frac{v_{m+1}^n - v_{m-1}^n}{2h} = 0.$$

The method of deriving these five schemes is very simple. This is one of the significant features of finite difference method. It is very easy to derive finite difference schemes for partial differential equations. However, the analysis of finite difference schemes to determine whether they are useful or not to approximate the solutions of the differential equation requires some powerful mathematical tools. The finite difference method has variety of schemes other than stated above. All schemes may not be equally efficient in approximating the solutions of the PDE's. We are naturally led to the question of which of them are useful and which are not. Indeed some are not. In fact, effectiveness of the scheme can be measured in terms of consistency, stability, accuracy and well-posedness of the scheme choosen. Before defining them , we first define some of the related terms.

The schemes that involve v at only two levels, e.g., $(n+1)$ and n are called *one-step schemes*. Of the above schemes , all except the leapfrog scheme are one-step schemes. Given the initial data v_m^0 , a one-step scheme can be used to evaluate v_m^n for all positive values of n .

The schemes that involve v at two or more levels e.g. $(n + 2)$, $(n + 1)$ and n are called multi-step schemes. The leapfrog scheme is an example of a multistep scheme. For a multistep scheme, it is not sufficient to specify the values of v_m^0 in order to determine v_m^n for all positive values of n . To calculate v_m^n completely in multi-step schemes, we must specify v on at least two initial time levels, i.e. $n = 0$, & 1.

Consistency

The most basic property that a scheme must have in order to be useful is that its solutions approximate the solution of the corresponding PDE's and that the approximation improves as the grid spacings h and k tend to zero. We call such a scheme a *convergent scheme*. Before formally defining the concept of convergence, it is appropriate to define consistency of the scheme.

A one-step finite difference scheme approximating a partial differential equation is a *convergent* scheme if for any solution to the partial differential equation $u(t, x)$ and solutions to the finite difference scheme v_m^n such that v_m^0 converges to $u_0(x)$ as mh converges to x , then v_m^n converges to $u(t, x)$ as (nk, mh) converges to (t, x) as h, k converge to 0.

This definition is not complete until we clarify the nature of the convergence of v_m^n defined on the grid, to $u(t, x)$ defined for continuously varying (t, x) .

Given a partial differential equation $Pu = f$ and a finite difference scheme $P_{k,h}v_m^n$, we say that the finite difference scheme is *consistent* with the partial differential equation if for any smooth function $\phi(t, x)$, $P_{k,h}\phi(k, h) \rightarrow P\phi$ as $h, k \rightarrow 0$, the convergence being pointwise convergence at each point (t, x) .

A *smooth function* is a function which is sufficiently differentiable in the domain of the context.

Example: The Forward-Time Forward-Space Scheme is consistent with the given PDE $u_t + au_x = 0$. It is a one-way wave equation, the operator P is given by

$$P = \frac{\partial}{\partial t} + a \frac{\partial}{\partial x},$$

so that

$$P\phi = \phi_t + a\phi_x.$$

The difference operator $P_{k,h}$ for the forward-time forward-space scheme is given by

$$P_{k,h}\phi = \frac{\phi_m^{n+1} - \phi_m^n}{k} + a \left(\frac{\phi_{m+1}^n - \phi_m^n}{h} \right), \text{ where } \phi_m^n = \phi(nk, mh).$$

By the Taylor series expansion, we have

$$\phi_m^{n+1} = \phi_m^n + k\phi_t + \frac{k^2}{2!}\phi_{tt} + O(k^3)$$

and

$$\phi_{m+1}^n = \phi_m^n + h\phi_x + \frac{h^2}{2!}\phi_{xx} + O(h^3),$$

where the derivatives on the right-hand side are all evaluated at (t_n, x_m) and so
Thus

$$P_{k,h}\phi = \frac{k\phi_t + \frac{k^2}{2}\phi_{tt} + O(k^3)}{k} + a\left(\frac{h\phi_x + \frac{h^2}{2}\phi_{xx} + O(h^3)}{h}\right). \\ = \phi_t + a\phi_x + \frac{k}{2}\phi_{tt} + \frac{ah}{2}\phi_{xx} + O(k^2) + O(h^2) \rightarrow 0 \text{ as } (k, h) \rightarrow 0.$$

Hence the scheme is consistent.

Example: The Lax-Friedrichs Scheme is consistent with the PDE $u_t + au_x = 0$.
For the given PDE, Lax-Friedrichs scheme is,

$$\frac{v_m^{n+1} - \frac{1}{2}(v_{m+1}^n + v_{m-1}^n)}{k} + a\left(\frac{v_{m+1}^n - v_{m-1}^n}{2h}\right).$$

The difference operator is given by,

$$P_{k,h}\phi = \frac{\phi_m^{n+1} - \frac{1}{2}(\phi_{m+1}^n + \phi_{m-1}^n)}{k} + a\left(\frac{\phi_{m+1}^n - \phi_{m-1}^n}{2h}\right).$$

Using Taylor series expansion with the derivatives evaluated at (t_n, x_m) and by simplification, we have

$$P_{k,h}\phi = \phi_t + a\phi_x + \frac{k}{2}\phi_{tt} - \frac{1}{2}\frac{h^2}{k}\phi_{xx} + \frac{ah^2}{6}\phi_{xxx} + O\left(h^4 + \frac{h^4}{k} + k^2\right) \rightarrow 0 \text{ as } k, h \rightarrow 0.$$

Therefore, the scheme is consistent.

Example: The forward-time central-space scheme is consistent with the PDE $u_t + au_x = 0$.

Stability

A finite difference scheme $P_{k,h}v_m^n = 0$ for a first-order equation is stable in a stability region if there is an integer J such that for any positive time T , there is a constant C_T such that

$$\sum_{m=-\infty}^{\infty} \|v_m^n\|^2 \leq C_T h \sum_{j=0}^J \sum_{m=-\infty}^{\infty} \|v_m^j\|^2$$

for $0 < n_k < T$ with (k, h) in stability region.

The L^2 norm of the grid function ω over the step size h is defined as

$$\|\omega\|_h = (h \sum_{m=-\infty}^{\infty} \|\omega_m\|^2)^{1/2}.$$

Note that the L^2 norm of the grid function ω i.e. $\|\omega\|_2$ is a measure of the size of the solution. In many problems the L^2 norm is a measure of a physically significant quantity such as the energy of the system. In terms of L^2 norm, the stability condition is expressed as

$$\|v^n\|_h \leq \left(C_T \sum_{j=0}^J \|v_j\|_h^2\right)^{1/2}.$$

which is equivalent to

$$\|v^n\|_h \leq C_T^* \sum_{j=0}^J \|v_j\|_h,$$

for some constant C_T^* . This inequality expresses the idea that the norm of the solution at any time t , with $0 < t < T$ is limited in the amount of growth that can occur. The

growth is at most a constant multiple of the sum of the norms of the solution on the first $(J + 1)$ steps. For one step scheme we may take $J = 0$ and $J \geq 1$ for multi-step schemes.

Example: The sufficient condition of stability with forward-time forward-space scheme for the PDE $u_t + au_x = 0$ of the form $v_m^{n+1} = \alpha v_m^n + \beta v_{m+1}^n$ is $|\alpha| + |\beta| = 0$.

Well-Posedness

The initial value problem for the first-order partial differential equation $Pu = 0$ is well-posed if for any time $T > 0$, there is a constant C_T such that any solution $u(t, x)$ satisfies

$$\int_{-\infty}^{\infty} \|u(t, x)\|^2 dx \leq C_T \int_{-\infty}^{\infty} \|u(0, x)\|^2 dx \text{ for } 0 \leq t \leq T.$$

The Courant-Friedrichs-Lewy (CFL) Condition

For an explicit scheme for the hyperbolic equation $u_t + au_x = 0$ of the form

$$v_m^{n+1} = \alpha v_{m-1}^n + \beta v_m^n + \gamma v_{m+1}^n,$$

with $\frac{k}{h} = \lambda$ (a constant), a necessary condition for stability is the Courant-Friedrichs-Lewy (CFL) condition, $\|\alpha\lambda\| \leq 1$.

Theorem

There are no explicit, unconditionally stable, consistent finite difference schemes for hyperbolic systems of partial differential equations.

Example The backward-time backward-space scheme for the PDE $u_t + au_x = 0$ is stable if $a > 0$ and $\lambda > 0$.

Comparative Study

In this section, we study the numerical solution of a PDE together with its exact solution in order to compare them so as to exhibit similarity of their natures. For it, Consider a PDE

$$u_t = au_{xx}$$

with boundary and initial conditions

$$u(0, t) = u(1, t) = 0,$$

and

$$u(x, 0) = f(x).$$

The exact solution of the PDE is

$$u(x, t) = \sum_{n=1}^{\infty} A_n e^{-an^2\pi^2t} \sin(n\pi x).$$

Taking $f(x) = 2\sin(2\pi x)$. For $a = \frac{1}{10}$, the numerical solutions of the equation is obtained from the mathematical software "Matlab" which yields a 3D surface as shown in the following graph. It is clear from the graph that the solutions behave as a sinusoidal function at the lower time level and as the time level increases, it becomes more and more constant and finally all the solutions appear to be coplanar so that the solution set appear a plane.

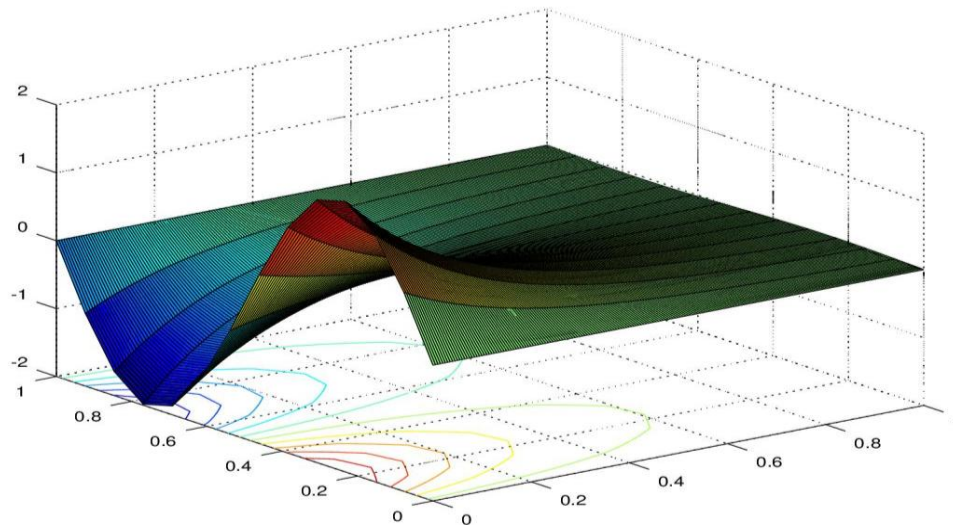


Figure: Velocity profile (Numerical solutions)

The graph of the initial condition with "Matlab" appears as below which is exactly similar to the velocity profile. This shows that the initial conditions also satisfy the velocity profile.

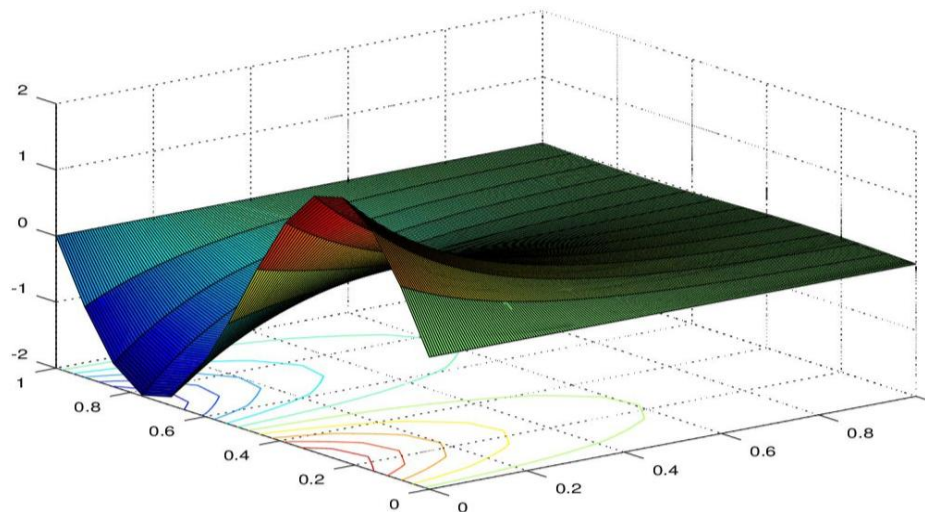


Figure: Graph of Initial Conditions.

We also can observe the various graphs of the solutions by changing time step size Δt , space step size Δx and the value of a . While changing the values, we should note that the CFL condition should be satisfied. Otherwise, the scheme will be unstable and so the graphical output will not be appropriate. The exact solution is presented below graphically with the help of matlab implementation.

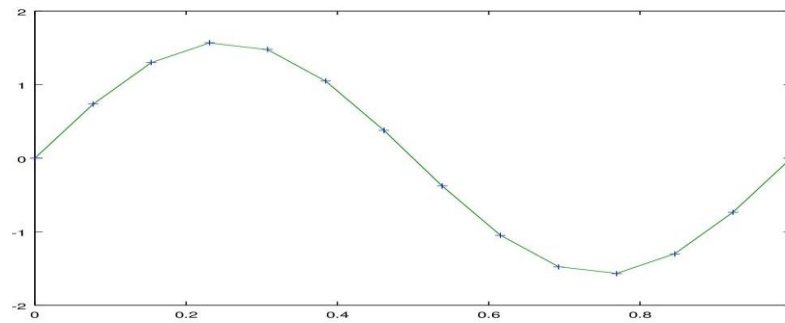


Figure: Graphical representation of exact solution

Result and Conclusion

Mathematics is an elegant and precise subject. However, when numerical answers are required we sometimes need to rely on approximate methods to predict answers. There are many problems which simply do not have analytical solutions or may be beyond our current state of knowledge. There are also many problems which are too long (or tedious) to solve by hand. When such problems arise, we can use numerical analysis to reduce the problem to one involving a finite number of unknowns and use a computer to solve the resulting equations.

From this study we observed that it is easy to find the exact solution of the Couette Flow problem. Since the numerical method gives only the numerical solutions, it mayn't be appropriate in the case when the exact solutions are available. The use of the finite difference method in this paper (Couette flow problem) is to verify its use in complex problems where the existing knowledge of mathematics is not sufficient for their solutions and it is proved from this work that the numerical scheme (Crank Nicolson) is the best approximation to the solutions of Couette flow problem. Therefore, one can say on the basis of this experiment that all convergent numerical schemes can approximate the exact solutions with desired degree of accuracy. Because of such successes of the numerical method, it is proved to be a good and applicable mathematical tool to deal with any sort of real life problems.

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FOOD ADULTERATION AND ITS EFFECTS ON HUMAN HEALTH

Madan Bahadur Thapa*

Abstract

This study entitled “Food Adulteration and its Effects on Human Health” was carried out to find major food adulterants of common foods and their health effects. Information and findings gathered here are from secondary data sources. Major food items found to be adulterated were: milk, fats/oils, grain, chili powder, tea, black pepper, coffee powder, gram pulses, cumin seeds, sugar, and cereals; and their common adulterants were: water, starch, groundnut milk, wheat flour milk, hydrogenated oils, animal fats, synthetic colors, sand, crushed stones, brick powder, artificial color, dried papaya seeds, chicory, kesari dal, stone, and alike seeds of wild plants. Similarly, stomach disorder, diarrhea, vomiting, food poisoning, loss of eye sight, heart disease, liver damage, paralysis, giddiness, tumor, and cancer were found to be main health problems associated with food adulteration.

Keywords: adulterant, artificial color, food poisoning, stomach disorder, and cancer.

Background

In rural areas, people raise most of that they eat and process it themselves and food additives are limited to home grown coloring and substances needed for preservation of vegetables and fruits. People in cities need food grown and preserved by someone else. Manufacturing of food products are springing up almost everywhere.

Food purity as such was not a major consideration in the past. Cheap and handy methods of preserving foods were important for profit and scientific knowledge of food chemistry was practically non existence. Over the years, the problem of food additive and adulteration has become acute.

Food adulteration is the addition and or removal of substances to or from food, so that the natural composition and quality is affected. Adulterated food is impure, unsafe and not wholesome. Food can be adulterated by unintentionally, intentionally, and naturally. Unintentional adulteration is a result of ignorance or lack of facilities to maintain good quality. This may be caused by spillover effect from pesticides and fertilizers. Inappropriate food handling and packaging can also result adulteration.

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Intentional adulteration is usually done for financial gain. The most common form of intentional adulteration is color adulteration. Some examples of intentional adulteration are addition of water to liquid milk, extraneous matter to ground spices or the removal of or substitution of milk solids from the natural products.

Natural adulterations occur due to the presence of certain chemicals, organic compounds or radicals naturally occurring in foods which are injuries to health and are not added to foods intentionally. Some of the examples are toxic varieties of pulses, mushrooms, green and other vegetables, fish, and sea foods.

Materials and Method

This study was carried out compiling information from published and unpublished documents. Secondary data gathered from books, journal, and internet. Data were arranged to extract results.

Results and Discussion

Food adulteration is the addition or mixing of inferior, harmful, substandard, useless or unnecessary substances to foods. This spoils the nature and quality of food items and is considered food adulteration.

Types of food adulteration

Milk Adulteration

Milk adulteration involves adding water to milk and removing the beneficial fats from milk. Often soya milk, starch, groundnut milk, and wheat flour are added to milk. This makes the milk less nutritious and it results in milk being useless for the consumer.

Adulteration of Fats and Oils

It is easy to adulterate oils and fats. Synthetic colors and flavors are added to other fats to make them appear like ghee. Ghee is often mixed with hydrogenated oil and animal fats. But, it is difficult to detect such adulteration.

Food Grain Adulteration

Food grain adulteration involves mixing sand or crushed stones to increase the weight of food grains. Cereal grains and pulses are mixed with plastic beads that resemble grains in color and size. Very often, water is also sprayed on grains to increase the weight.

Other Adulterations:

Chili powder is often mixed with brick powder, while tea leaves are often mixed with used tea leaves. These adulterations are very harmful to the consumer and they should be addressed by consumer organizations and consumers seriously. Food items and their adulterants are tabulated in Table 1.

Table 1: Food items and their Adulterants

Food items	Adulterant
1.Milk	Water, starch, groundnut milk, wheat flour, removal of cream
2. Fats/Oils	Hydrogenated oils, animal fats, synthetic colors, flavor
3. Grains	Sand and crushed stones, plastic beads, water
4. Chili powder	Brick powder, artificial color
5. Tea	Used tea leaves
6. Black Pepper	Dried papaya seeds
7. Coffee powder	Chicory
8. Gram pulses (dal)	Kesari dal, clay, stone
9. Jeera	Stone, alike seeds from wild plants
10. Sugar	Fine white sand. Chalk powder
11. cereals	Stones pieces, mud, ergot seeds

Source: Food adulteration. Blogspot.com/2010/12/ history of food- additive.html3.

Effects of food Adulteration

Adulteration of food causes many health problems in humans. Some of the health hazards include stomach ache, body ache, anemia, miscarriage, paralysis and increase in the incidence of tumors, lesions in vital organs. Food adulterants and their effects are given in Table 2. Non – permitted color or permitted food color like metanil yellow beyond the safe limit in colored food can cause allergies, hyper activity, liver damage, infertility, anemia, cancer and birth defects.

Table 2: Food Adulterant and their Effects

Adulterants	Effects
1. Yellow dye	Leprosy, paralysis
2. Tamarind seeds, data seed powder	Diarrhea, stomach, liver problem
3.Chicory powder	Stomach disorder, giddiness and joint problem
4.Unhygienic water	Diarrhea, vomiting and cholera, typhoid
5. Washing. soda chalk powder	Stomach disorder ,vomiting and diarrhea
6.Argemone oil and seeds	Loss of eye sight, heart disease, tumor epidemic dropsy and glaucoma
7. mineral oil, pongamia(karanja) oil	Damage to liver, carcinogenic effects, liver damage and stomach problem, liver disorder and cancer
8. Artificial colors	Liver disorder and cancer
9. Dried papaya seeds	Stomach irritation, liver damage, cancer
10. starch vanaspati ghee	Food poisoning
11. Stone, alike seeds from wild plants	Stomach problem , liver damage

Source: www.scribd.com/doc/23203704/ chemistry- project

Conclusions and Recommendations

It can be concluded that food items: milk, fats/oils, grain, chili powder, tea, black pepper, coffee powder, gram pulses, cumin seeds, sugar, and cereals are adulterated by

their adulterants: water, starch, groundnut milk, wheat flour milk, hydrogenated oils, animal fats, synthetic colors, sand, crushed stones, brick powder, artificial color, dried papaya seeds, chicory, kesari dal, stone, and alike seeds of wild plants. Similarly, stomach disorder, diarrhea, vomiting, food poisoning, loss of eye sight, heart disease, liver damage, paralysis, giddiness, tumor, and cancer were found to be main health problems associated with food adulteration.

Selection of wholesome and non-adulterated is essential for daily life to make sure that such foods do not cause any health hazards. Visual examination of the food before purchase makes sure to ensure absence of insects, visual fungus, and foreign matters. Therefore, due care taken by the consumers at the time of purchase after thoroughly examining can be of great help.

Secondly, level of declaration on packed food is very important for knowing the ingredients and nutritional value. It also helps in checking the freshness of food and period of best before use. The consumer should avoid taking food from unhygienic place and food being prepared under unhygienic conditions.

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Food adulteration. Blogspot.com/2010/12/ history of food- additive.html3.

[www.scribd.com/doc/23203704/ chemistry- project](http://www.scribd.com/doc/23203704/chemistry-project)

A COMMUNITY WORK ON SOLID WASTE MANAGEMENT AT HOUSEHOLD LEVEL KERKHA, TOPGACHHI-7, JHAPA

Esha Rai^{*}, Rejina Maskey^{**}

Abstract

Solid waste is the unwanted solid materials generated from different residential, industrial and commercial activities in a given area. These waste, if not managed properly, increases risk of injury and infection. Kerkha (Topgachhi-7) is a village with 683 numbers of households where households are the single largest generators of municipal waste. Thus, awareness related to the solid waste management and its impact on health was the motive of the community work. Different activities like social survey, key informant survey, group discussion and seminars were conducted. In addition, demonstration on preparation of simple compost from the household waste was also done successfully. From the survey and focus group discussion it was noted that somehow people were facing the challenge regarding solid wastes, which were generated higher from houses. Finally, from feedback survey positive attitude and response toward waste management was seen. As the waste generation scenario was found higher from household, plan for the household solid waste treatment and management methods to achieve the sustainable solid waste management system is necessary. It is the responsibility of the local authority and community people being the indifferent part of the management system must work together to ensure the service is provided to its communities while meeting the standards expected by these communities in affordable way.

Keywords: epidemics, health hazard, household waste, solid waste management

Introduction

Solid waste is the unwanted solid material generated from different residential, industrial and commercial activities in a given area. It may be categorized according to its origin (domestic, industrial, commercial, construction or institutional); according to its contents (organic material, glass, metal, plastic paper, etc.); or according to hazard potential (toxic, non-toxin, flammable, radioactive, infectious, etc.); (Sharma & et al, 2014). Household solid wastes are the domestic or residential unwanted substances or disposal from our daily needs. In an attempt to increase the quality of life, residential consumers may fail to pay adequate attention to solid waste management. Such a failure results a severe penalty at a later time in the form of adverse impact on the environment and on public health and safety (Riyad & et al, 2015). The greater the degradation of the environment, the greater is the effort required to restore its good quality. Thus, Solid

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waste management at household level is very important approach which helps to reduce or eliminate the adverse impact of waste and supports quality of life.

Solid waste management at household level includes collection, segregation, proper treatment and disposal of the solid waste generated at the source. This approach facilitates the identification and selection of low-cost solutions by encouraging the management of waste at the houses itself which is in fact a very effective method to control the production of waste from houses and also fully utilization of the wastes in marvelous way. It helps to avoid the problems associated to improper disposal of waste like spread of diseases, health degradation, environmental degradation, etc. Segregation of waste at source is the vital element of management that include the division and collection of waste in separate bins according to its nature or type. Household solid waste can be broadly categorized into three nature or types according to its content.

They are:

- Degradable household waste
- Non-degradable household waste and
- Hazardous household waste (Tchobanoglous & et al, 1993)

Hazardous household wastes are the wastes from chemical products namely the wastes from paints, oil, batteries, cleaners, pesticide containing products like mosquito killer, cockroach killer, etc. disposed by residential consumers which are directly or indirectly harmful to the health of them and to the components of environment as well. Similarly, uncontrolled or poor management of intermediate decomposing wastes can contaminate air, water, and soil resources and uncontrolled burning and disposal of non degradable wastes constitute major threats to health and environment. The primary need and concern of the community work was increasing awareness to the community about solid waste and the importance of its management from their houses in household level. And to provide knowledge on segregation of wastes generated and preparation of simple compost at their houses itself.

Material and Methods

Study Area

The community work was under taken in the community of Kerkha, Topgachhi-7, Jhapa. The community was dominated with Brahmins, Chettris, Gurungs and Tamangs. Most of the people were engaged in agriculture. It is the main hub for market.

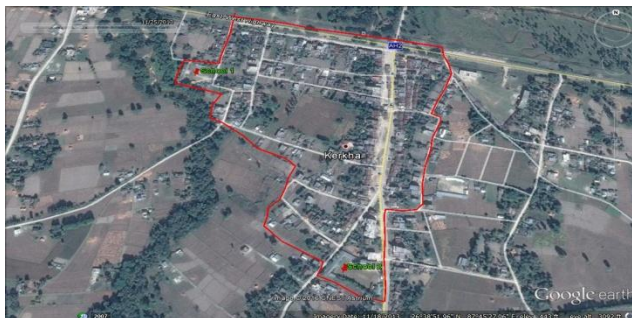


Figure 1: Study Area

The focus group discussion and school seminar programs were conducted for two days where total number of participators was 52 (34 women and 18 men) on the first day and 37 (28 women and 9 men) on the second day. The focus group discussion was mainly focused on women of the houses which were conducted for two hours each on the date of 08-07-2070 and 09-07-2070.

Key Informant Survey:

Key informant survey was done with some active workers of Yuba club in the community who deal with different social activities, with the VDC secretary and with allocated municipal waste collectors. Survey was done in order to know the scenario of waste management from administrative level.

Transact Walk survey:

During transact walk, questionnaire survey was done in the houses beside the selected roads within the study area. The survey was done to know people's prospect regarding waste management and prevailing practices in the study area.

School Seminar:

As every community people might not be attending the focus group discussion school seminar was conducted in two different schools where the knowledge was shared with the students of class 6 to 10 (the classes familiar to environment science) and discussion was done. Together waste management cycle for household level was prepared.

Focus Group Discussion:

The program was conducted for two days where total number of participators was 26 (18 women and 8 man) on the first day and 23 (all women) on the second day. In this program discussion was done about the raised issue concerning effective management of solid wastes in houses itself. Women/ housewives were the focused group for the discussion.

Feedback survey:

In this survey, feedback of the focus group discussion was noted. Feedback survey was done in the houses of the participators to know the behavioral change toward waste management. Questionnaire survey method was used to fulfill the objective.

Result and Discussion

From the survey and discussion of various issues on household wastes and its management with the community people through different survey, seminar and group discussion the result presented that the community were somehow facing the challenge regarding solid wastes, which were generated higher from houses. Improper dumping, uncontrolled burning, haphazard disposal, etc. showed the worsening scenario of the community. These include throwing the waste into the street area or on unenclosed dumps from where it can be removed or burned during the process of street cleaning.

From the key informant survey it was noted that the lacking concern of people was the main problem of the smooth management which include activities like haphazard dumping in garbage heap or a sewage pond or simply throwing the waste into the street.

From the transect walk survey and focus group discussion it was noted that the concern body wasn't working effectively which include untimely collection of the dumped waste. Both of the complaints cleared that there was lack of good communication between community people with the concern body and waste collectors and vice versa. After the key informant survey and focus group discussion lack of communication between them was understood. This gap was then bridged in the very discussion. And the importance of plan preparation and formulation together by both groups (i.e. local people and authority staff) to achieve the sustainable development regarding solid waste management was made clear.

School seminar was fruitful as expected where students showed their curiosity and positive feedback to the solid waste management program. The prevailing unhealthy practices and its effect were made clear. Importance of waste management was highlighted. 3Rs (Reduce, Reuse and Recycle) principle, segregation of waste and composting of degradable waste was taught. And the chart of waste management cycle was prepared including the participation of the students. From the school seminars, chart of waste management cycle was prepared which was then used in focus group discussion as a knowledge sharing tool where lack of knowledge about the effect of haphazard dumping on their health and environment was noted. Also complains regarding dumped garbage being unsound during summer and rainy season was also found.

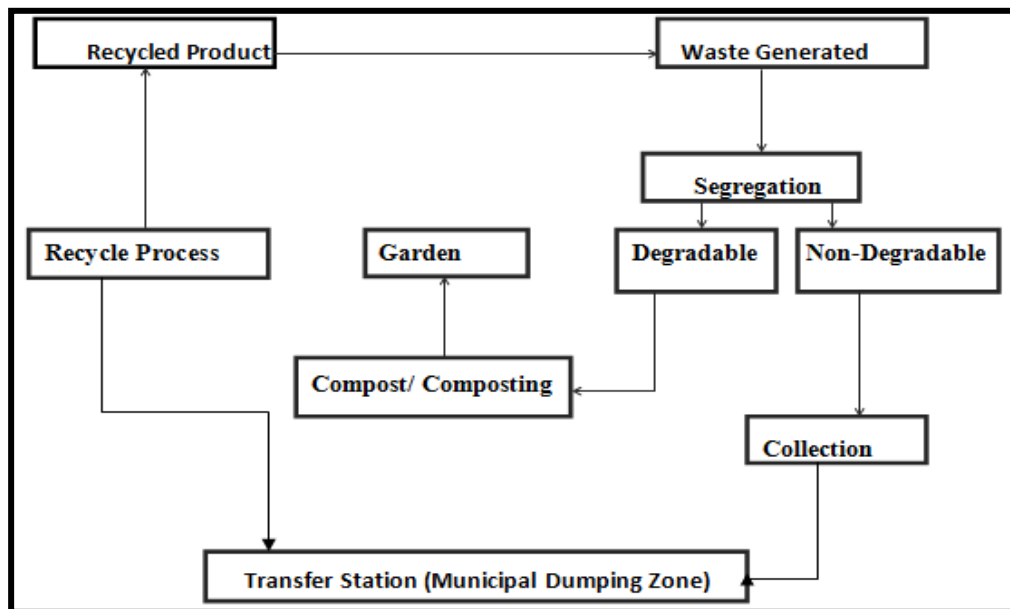


Fig: Waste Management Cycle Chart (School Seminar)

In focus group discussion the scenario of waste production in their community was made clear and management of the produced waste in the source i.e. in their houses was encouraged. Introduction to the waste they are handling in their daily life was given in each event, its types, effects, and the importance of its management was cleared among them. Implementation of 3Rs principle in their day to day life was encouraged as well as the importance of segregation of the waste and their proper use or disposal was made clear. Spot segregation of the waste into two separate degradable and non- degradable bins was presented through the presentation and the list of degradable and non-degradable items was also provided. Proper disposal of non- degradable and composting of degradable waste was suggested as well as simple composting of the separated degradable waste was taught. From the overall discussion and interaction among the community people through different mode, an easy solution of the effective management of waste was achieved. Spot segregation of the waste and compost preparation from the degradable waste was adopted. Collection of degradable kitchen food waste for animal feed was encouraged.

Tab: Response of Feedback Survey

S.N.	Response	Yes	No
1	Spot Segregation of waste	73	16
2	Haphazard Dumping	00	89
3	Open Burning	12	77
4	Composting	65	24

Feedback survey was also found positive. People were more aware and started the waste management system in their houses. Most of them started the spot segregation process and composting the waste too. They were observed collecting the degradable food waste from kitchen for animal feed. This positive response will surely lead to observable result soon.

Conclusion

As the waste generation scenario was found higher at household level, plan for the household solid waste treatment and management methods to achieve the sustainable development regarding solid waste management is necessary. Solid waste management training must be provided and promoted in every community. It raised awareness among the community people with positive change in their attitude. Segregation of the waste at the source is the prime stage of waste management. Thus, the bio-degradable and non- degradable waste should be separated at home before its disposal. Composting of degradable waste adds up to the environmental and health sanitation. It provides a good way to turn waste into a resource that benefits both the environment and community people. For the non- degradable waste 3Rs principle should be followed. Also, proper allocation of Landfill site should be done and must be properly managed in every locality. Minimization in the use of plastic product should be encouraged.

Acknowledgements

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KNOWLEDGE AND PRACTICE OF HEALTH PROMOTION AMONG THE SCHOOL TEACHERS AT LAKHANPUR VDC, JHAPA

Til Chandra Adhikari*

Abstract

This study was carried out in schools at Lakhanpur VDC in Jhapa district employing descriptive and quantitative design. The main objective of the study was to find out the knowledge and practice of health promotion among the teachers. All 142 teachers of 10 community schools of Lakhanpur VDC were selected for the sample of the study on census method. Questionnaire and oppinionnaire were used as tools for data collection. Simple statistical techniques, tables, percentages, figures etc. were used for analysis and interpretation. On the basis of the study; it was found that the knowledge of health and health promotion was inadequate as per worldwide initiation of health promotion. The situation of understanding and practice of Nepalese teachers on health promotion within the school is found to be unsatisfactory and requires. Health promotion of an individual determines by his own behavior. Using alcohol, smoking using balance diet and rest are the behavior of person which is directly concern with health promotion. A person may have enough knowledge of negative effect of taking alcohol and smoking but he does not leave them. In spite of having sound idea of those negative effect of using alcohol and smoking, he gives continuity as a result he suffer from many diseases. Similarly, a person has enough knowledge about balance diet and affect of rest in his health but he does not apply his knowledge in his practical life.

Keywords: health health promotion, knowledge of HP, work place HP, practice of HP

Introduction

Traditionally health was viewed as an “absence of disease”. If one was free from disease then the person was considered healthy. In the broad sense, health does not mean the absence of disease or provision of diagnostic, curative and preventive service. According to Oxford English Dictionary, 1998 health means, state of being well and free from sickness, injuries or disease: as long as man has his health nothing else matter (Wait, 1998). This meaning was covered the definition of health for few years but later it became narrow. Health involves individual state and international responsibility (Park, 2007). Health has involved over the centuries as a concept from an individual concern to a worldwide social goal and encompasses the whole quality of life. At present WHO considers it necessary to find a direction towards the achievement of a robust, happy and active bodily and mental condition capable of continuous productive ability. In this way, the health promotion has been part of the continuous development of modern definition of health and it has been accepted under the broad meaning of health.

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Health promotion is rapidly establishing itself as an important force within the new public health (Bunton and McDonald, 1995). Health promotion is a core aspect of the work of a wide range of health care workers and those engaged in education and social welfare. It is an emerging area of practice and studied health promotion is the process of enabling people to increase control over and improve their health (Ottawa Charter, 1986). Health promotion and health promoting behavior is not only a part of individual knowledge and behavior change but also community capacity building, empowerment and policy change over the three decades, the field of health promotion has emerged as a new way of thinking about route cause of health and wellness. This thinking has sparked the development of new approaches to improving the health of individuals and communities (Ottawa charter, 1986)

Health promotion focuses on achieving in health. Health promotion action aims at reducing difference in current health status and ensuring equal opportunities and resources to enable all people to achieve their fullest health potential. People cannot achieve their fullest health potential unless they are able to take control of those things, which determine their health. Health promotion demand co-ordinate action from all concerned government, health sectors, social and economic sectors as well as schools and educational institution (Pathak and Giri, 2007).

The concepts of health promotion begin to take shape due to the neglect of citizen as an individual by earlier public health approaches. Health promotion represent at the very simplest level whether one adopts a structuralist or individualist approach to health, a strategy for promoting in some positive way, the health of whole population (Bunton and Mcdonald, 1995). Schools are also organization where teachers are employed as human resource. They are the workers there and are supportive to the advancement of educational scenario of every nation; nevertheless, their effort put in educational development depends largely on their personal health and the working condition of the school. It should organized that advanced in education depends largely upon the qualification and ability the teaching staffs in general and upon the human pedagogical and technical qualities of the individual teachers.

School can promote the health and welfare of children teachers and other young people who directly concern with school (Naidoo and Wills, 2009). The development of the school health service and the requirement for school boards to provide meals and more recently, the inclusion of physical education on the national curriculum and the setting of nutritional standards for school meals are examples of how the school was seen as a key setting in which a captive audience could be encouraged to adopt lifestyle conducive the goal of health.

In Nepal school's are still lagging behind theoretically stuck on school health program and having no real practice of it. Teachers teach health education but their practice of healthy behavior themselves is poorer. There is no good program on production of healthy health education teacher. Students too are found to be aware of health related matters but do not apply that in life because "Knowledge of impact of behavior on

health does not inevitably to healthy behavior” (Lister-sharp et al., 1999). Jhapa is counted in second number of literate district in Nepal. It is also known as second educated district of Nepal. But we can say Jhapa is slightly uneducated in the eye of health education because of sanitation and other health activities. Almost 90 percent schools have not conducted school health program as well as health promotion activities.

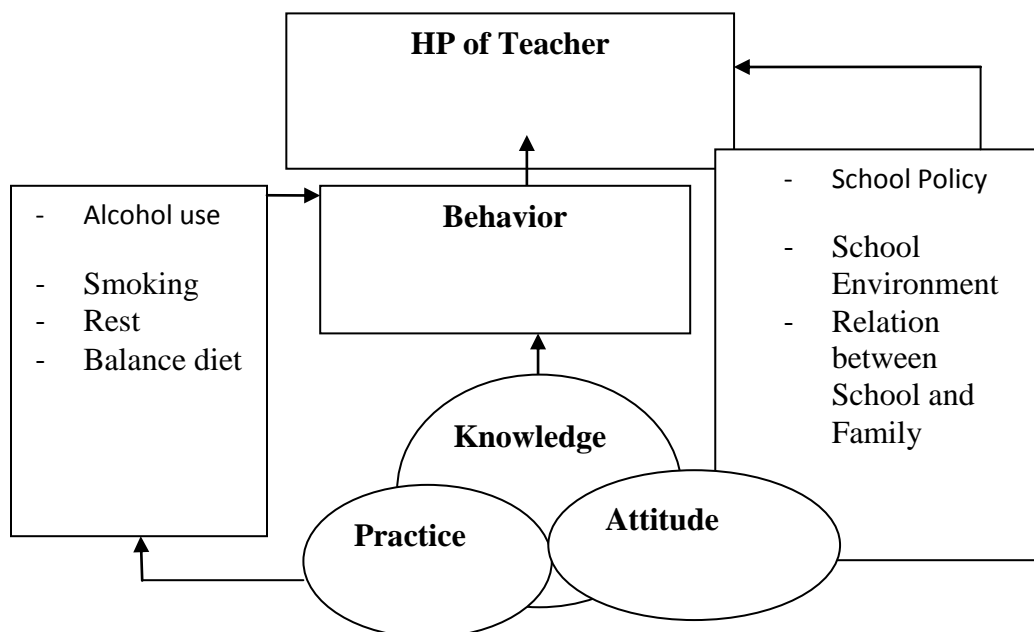
Methodology

Methodology means the framework associated with a particular set of pragmatic assumptions that we will use to conduct our research, i.e. scientific method, ethnographic method (O'Leary, 2004). Research methodology determines activities to achieve the main objective of the study. Research methodology is a way to systematically solve the research problem. It may be understood as a science of studying how research is done systematically (Kothari, 2000).

The study utilized descriptive research design as well as quantitative in nature. This method of research was applied to explain properly the different findings which were come from the study. Both primary and secondary data has been used in this study. The teachers of community schools of Lakhanpur VDC were selected as primary source of data in the study. There were 142 teachers in Lakhanpur VDC in community school. All of the teachers who were selected as the respondents in the sampling process of census. Questionnaires and opinionnaire were used as the tools of the study. The research tools were previously used in similar type of respondents of Topgachhi VDC for the validation of the tools. After that some modification was made in the content of questionnaire and opinionnaire. The researcher visited respondents, explained the nature of the study then filled consent form and made a favourable environment for administrating tools. Then the researcher distributed questionnaire and opinionnaire to fill in. To analyze the data, simple statistical procedure like calculation of percent has been followed. The data was presented in tables and figures as far as practicable. Before analyzing the data, the data was carefully checked and edited to reduce possible errors and tabulated in master sheet manually. The data deals with knowledge of HP and respondents, similarly attitude, practice and role of teacher's behaviour in HP topics-wise.

Conceptual framework

The notion of a research framework is central to every field of inquiry. A research framework is a basic structure of the ideas (i.e. abstractions and relationship) that serve as the basis for a phenomenon that is to be investigated. A framework provides a structure for conceptualizing and designing research studies (Mudwari, 2011). Conceptual framework is used to analyze the common relationship between dependent and independent variables included in the study. The framework which is shown in the following figure makes it clear.



Health promotion represents a comprehensive social, political and self motivational process. Health promotion of an individual determines by his own behavior. Using alcohol, smoking using balance diet and rest are the behavior of person which is directly concern with health promotion. A person may have enough knowledge of negative effect of using alcohol and smoking but he does not leave them. In spite of having sound idea of those negative effect of using alcohol and smoking, he gives continuity as a result he suffer from many diseases. Similarly, a person has enough knowledge about balance diet and affect of rest in his health but he does not apply his knowledge in his practical life.

School policy, environment and relationship are the main factor of health promotion of teachers. If school policy and school environment do not play the principal role to improve the health promotion of an individual, teacher only cannot provide his duty properly to improve the health of the students.

The attitude and knowledge towards using alcohol, smoking, rest and balance diet of any individual and teacher decrease or increase, its practice which directly or indirectly effect in his behavior, change his behavior and changing behavior directly effects in his health promotion. For example, if a teacher received a knowledge or make attitude of negative effect of smoking and using alcohol. He stops to use it even if he is taking. Which make positive change in his HP. Similarly, if he gets knowledge about advantage of balance diet on health or creates such concept, he changes in practices towards rest and balance diet, which changes his behavior that helps in positive change in his health promotion.

Likewise, environment of the school plays positive role in health promotion of the teacher. If the school has healthy school policy and relationship between school and community is healthy and the teacher does not feel any tension in school his health becomes better.

Results

Knowledge of Health

Knowledge of health is most essential part to be a healthy person, healthy society and healthy nation. A healthy teacher can be more productive than others. So, the teachers need to be healthy, for which their perception towards health should be strong. Level of knowledge about health of respondents is given the Table 1

Table 1

Knowledge of Health

Description	No. of Respondents	Percent
Physically fit for health	87	61.20
Economically strong	44	30.90
Good social activities	46	32.30
Emotionally healthy	62	43.40
Absence of disease	118	83.10
Absence of pain	96	67.70

*Multiple Responses

N=142

Among the respondents of the study, from Table 1 it has found that 83.1 percent noted that health is absence of diseases; similarly 67.7 percent noted that health is absences of pain. Only 30.9 percent of the respondents noted that health means to be economically strong and 32.3 percent respondents said health means to be good social activities, and 61.2 percent respondents noted physically fit for work is also a part of health. Similarly 43.4 percent respondents said emotional health means health.

According to H.S Hoymen, Health is merit dimensional unity, involving the whole person in his/her total environment (as cited in Mudwari, 2010). On the basis of this definition of health, health means not only free from pain and disease but also being socially, emotionally, economically and physically healthy but the concentration towards health of respondents in the study area is still limited on absence of disease.

Knowledge of HP

Health promotion is positive concept and holistic view of health. In the context of Nepal it is necessary to have sound knowledge of HP for a person as well as a teacher. The respondents were presented their knowledge over HP. Their knowledge obtained for the question "what do you understand by health promotion?" is shown inTable 2

Table 2
Knowledge of HP

Description	No.	percent
process of enabling people to increase, control over and to improve our health	92	64.80
the art of behaviour change for optimum health	80	56.30
methods of managing disease	58	40.80
skill of positive change in health by minimization of risk	56	39.40
management of healthful living	45	31.70
management of environment	54	38.00
to make community work strong by making people able and powerful	41	28.90

*Multiple responses

N=142

The Table 2 shows that 64.8% respondent said that HP is means process of enabling people to increase, control over and to improve health. 56.3% respondents noted the art of behaviour change for optimum health. 40.8% noted that method of managing disease. 39.4% said that HP means skills of positive change of health by minimization of risk. Similarly 31.7% noted that HP means managing of healthful living. 38 % said that HP means management of environment. Remaining 28.9% said HP means to make community work strong by making people able and powerful.

According to Budhathoki (2068 BS) health promotion means a broad social and political process which improves public and personal health by the developing skill and power of the society and person to change life style and behaviour through social, financial, political, legal and environment change.

Data revealed that there is the wide gap between definition and knowledge of HP of respondents. When compare the definition is to mean HP as whole aspect of promotion then, also only few people have been found who believe HP as ; management of environment, management of healthful living, skill of positive change in health and method of managing disease.

In this way the teacher is believed as a key person to make healthy school environment, so the stakeholder should concentrate to create healthful school environment by making teacher's view strong towards HP.

Attitude towards Health Promotion

Opinion ire is a tool that is used to measure attitude, view and belief of the human being according to the Thustone, an attitude is the degree of positive or negative affect associated with some psychological objects i.e. any institutions, ideal, symbol, phrase, slogan, job or idea etc. (as cited in khalil, 2067, BS) researcher had taken views of the respondents using likert's method to find out the opinion or attitude of the respondents on the different statements of health promotion in the study area. This is shown in the Table 3.

Table 3
Attitude towards Health Promotion

Opinion	SA	%	A	%	UD	%	D	%	SD	%
HP means to achieve better health.	66	46.5	29	20.4	21	14.8	26	18.3		
Healthy people are more productive than other.	63	44.4	53	37.3	26	18.3	-			
An individual is responsible himself for HP.	70	49.3	34	23.9	16	11.3	22	15.5		
It is beneficial to drink much tea.	10		12	8.5	22	15.5	70	49.3	38	27.7
It is necessary to take bath every day to be healthy and dynamic	58	40.8	68	44.4	13	9.2	8	5.6	-	-
There is less role of sanitation in HP.	-			-	24	16.9	44	31.0	74	52.1
School teacher and parent have equal role to make a school as a health promotive school.	74	52.1	55	38.7	-	-	13	9.2	-	-
Teacher behaviour doesn't have any role to establish health promotive school.	0		8	5.6	8	5.6	44	30.9	82	57.8
Healthy policy is necessary to build health promotive school.	72	50.7	51	35.9	8	5.6	11	7.8		

Note: SA – Strongly Agree
A – Agree
UD – Undecided
D – Disagree
SD – Strongly Disagree

Table 3 shows that 46.5 % of the respondents are strongly agreed on HP means to achieve better health, 20.4 % are agree, 14.8 % are unable to decide and 18.3 % of the respondents are disagreed. This data shows 33.1 % of the respondents are still unknown about health promotion. Similarly; 44.4 % of the respondents were found strongly agreed on healthy people are more productive than other, 37.3 % were agreed and 18.3 % of the respondents were unable to decide.

On the same way, 49.3 % of the respondents were strongly agreed on the statement 'an individual is responsible himself for HP'. 23.9 % were agreed, 11.3 % were unable to decide and 15.5 % of the respondents were disagreed. Similarly, 18.5 % were agreed on the statement 'It is beneficial to drink much tea', 49.3 % were disagreed and 26.7 % were strongly disagreed. In this statement most of the respondents were found disagreed and only few respondents were found agreed.

Likewise, 40.8 % were found strongly agreed, 44.4 % agreed, 9.2 % were unable to decide and 5.6 % of the respondents were disagreed on the statement 'It is necessary to take bath everyday to be healthy and dynamic.' on the same way, 16.9 % were unable to decide, 31.0 % were disagreed and 52.1 % of the respondents were strongly disagreed on the statements 'there is less role of sanitation in HP.'

Similarly, 52.1 % were strongly agreed, 38.7 % were agreed and 9.2 % were strongly disagreed on the statement 'School, teacher and parents have equal role to make school as health promotive school.' on the another statement 'Teacher's behaviour doesn't have any role to established health promotive school', 5.6 % were agreed, 5.6 % were not able to decide, 30.9 % were disagreed and 57.8 % were strongly disagreed.

Similarly, 50.7 % were strongly agreed, 35.9 % were agreed, 5.6 % were not able to decide and 7.8 % were disagreed on 'Healthy policy is necessary to build health promotive school.

In this way, after analyzing the attitude scale some teachers are found that they have not clear knowledge of HP. So the stakeholders should be concentrated to lunch the appropriate programe for the teacher to give them knowledge related to health and HP.

Practice of Health Promotion Doing Continuous Physical Exercise

Physical exercise is an important part of formation of body. So it is necessary to do continuous physical exercise for man. Researcher had asked to respondents, whether they do regular exercise. The response of the respondents is presented in the Table 4.

Table 4
Doing Continuous Physical Exercise

Do you do physical exercise continuously?	Number	Percent
Yes	89	62.70
No	53	37.30
Total	142	100.0

Table 4 shows that 62.7 % of the respondents do regular exercise and 37.3 % of the respondents never do physical exercise. Physical exercise is necessary to make body fit and it is necessary for making sound mind in sound body but still some teachers are found out of physical exercise.

Habit of Taking Smoke (Tobacco)

Smoking is a dangerous habit that is linked to many deadly and disabling diseases. Research indicate that the total amount of tobacco smoke inhaled is a key factor contributing to disease people who smoke more cigarettes per day, inhale deeply puff frequently smoke cigarettes down to the butts or begin smoking at an early age run a greater risk of disease than do those who smoke more moderately or who do not smoke at all. (Insel and Roth, 2004) Habit of taking smoke of respondents is shown by Table 5.

Table 5
Habit of Taking Smoke

Description	Numbers	Percents
Usually take	58	40.80
Sometimes take	36	25.40
Do not smoke	48	33.80
Total	142	100.00

Above table shows that 40.8 % respondents usually take smoke, 25.4 % respondents take smoke sometimes and 33.8 % respondents do not take smoke.

Cigarette smoking is one of the most serious yet preventable health problems (Satrock, 2007). Tobacco adversely affects nearly every part of the body, including the brain,

stomach, mouth and reproductive organs. It is also the primary cause of lungs cancer. Thus teacher as a promoter of the students, he should be suggested to control his smoking habit, as a result he can be healthy himself and those students, who imitate him and smoke, will control smoking. According to given table most of the teachers are found smoking which is totally wrong habit.

Habit of Taking Alcohol

Alcohol is an extremely potent drug. It action the body as a depressant and slows down the brain activities. Even in relatively small amounts alcohol can alter the normal functioning of the liver. With continued use, liver cell are progressively damaged and then permanently destroyed (Insel and Roth, 2004).

Nepal is multiracial country. Different races have Variety of culture and cultural festivals. They need to drink and use alcohol in their festivals because of cultural rules and customs. As a result they have habit of drinking alcohol in the means of saving culture. Alcoholic habit of the respondents of study area is shown in the Table 6.

Table 6
Habit of Taking Alcohol

Do you take alcohol ?	Number	Percent
Usually	32	22.50
Occasionally	35	24.70
No	7	52.80
Total	142	100.00
If take, cause of taking Alcohol		
To preserve culture	22	31.90
Due to the use of past generation	27	41.30
Due to friends	11	16.40
For entertainment	7	10.40
Total	67	100.00

Table 6 shows that 22.5 % respondents drink alcohol usually, 24.7 % respondents drink occasionally and remaining 52.8 % respondents do not take alcohol. Among 67 respondents who drink alcohol, 31.9 % drink to save culture, 41.3 % drink alcohol because they went to follow forefather, 16.4 % drink alcohol because of their friends and remaining 10.4 % drink alcohol for entertainment.

During research 73.2 % of the respondents said that it is not better to drink alcohol but only 52.8 % respondents apply in their behaviour among those who said it is not better to drink alcohol. It shows that there is gap between knowledge and practice of the teacher in the study.

Alcoholics have a cancer rate about 10 times higher than that of the general population (Insel and Roth, 2004). Thus, it is necessary to provide sufficient awareness to the teacher to make them stop drinking alcohol.

Feeling Tension / Stress in School

Stressors come in many forms, and even positive life events can increase our stress levels. Although all human have the same psychological system for responding to stress, stress reactivity varies across individuals (Corbin, et al 2004). Some of the teachers also in the school feel mental or psychological stress which may affect directly in teaching learning activities. The researcher had asked to the teacher whether they feel any tension/stress during school. The response of the teachers can be presented in the Table 7.

Table 7
Feeling Tension / Stress in School

Description	Number	Percent
Yes	62	43.70
No	80	56.30
Total	142	100.00

According to table 7, 43.7 % respondents / teacher feel stress in the school and 56.3 % do not feel tension / stress in school.

The teachers and students should not feel any tension / stress during the school time to make academic result strong and develop the school in all of the ways. According to given data 43.7 % teachers of the study area feel stress in the school. If that is decreased to 0 % then the schools of the study area can be healthy.

Life Style and Initiation/Interest in Health Promotion Activities of Teacher

The term life style is used to denote 'the way people live' reflecting a whole of social values, attitudes and activities life styles are learnt through social interaction with parents, peer groups, friends, siblings school, workplace and mass-media. According to Park (2002) the health requires the promotion of healthy lifestyle. He said that "in developing countries where traditional lifestyles still persist; risks of illness and death are connected with lack of sanitation, poor nutrition, personal hygiene, elementary human habits, customs and cultural patterns".

It is not that all the lifestyles are harmful. Some of the life styles are favorable to the health promotion of individual too. Health promotion is not the prevention of the disease but is the modification in lifestyle and adoption of healthy lifestyles. For a promotive health, a better and healthy lifestyle at all types of social setting is a must. On this regard, it was asked to the teachers about their interest in health promoting activities. Their initiation in health promotion is shown in the Table 8.

Table 8

Teacher's Initiation / Interest in Health Promotion Activities

Teacher's Initiation / Interest in Health Promotion Activities	Number	Percent
I do not feel the need for help with my life style	10	7.00
I've been thinking about changing some of my health behaviour	61	43.00
I am planning on making behaviour change in the next 30 days	42	29.60
I have made some behaviour change but I still have trouble following through	21	14.80
I have had a healthy lifestyle for yrs	8	5.60
Total	142	100.00

According to Table 8, the interest on health promotion is found to be varying among the teachers. Their perceptions varied on their initiation to involve in such activities. It was positive in a matter too that most of the respondents (43.0 %) wished to change their health behaviour. This indicated that the teachers themselves were becoming conscious on their health promotion.

A next big percentage of the teachers (29.6 %) said they were soon going to change their existing behaviour (within next 30 days). Would they really change their behaviour or not, was not the scope of this study, but it was showing a better future of health among the teachers as per their present level of interest. Only a few (5.6 %) teachers were confident on their existing life style as healthier one.

Teacher's Participation in Health Promotive Programme Conducted by School

Researcher had asked how their participation was in health promotive programme conducted by their school to the teachers. The response of the teacher is shown in the

Table 9
Teacher's Participation in Health Promotive Programme Conducted by School

Description	Number	Percent
Always	78	54.90
Sometimes	37	26.10
I have not participate	27	19.00
Total	142	100.00

Table 9 shown that, 54.9 % teachers are always participates in programme conducted by school, 26.1 % teachers sometimes participate and 19.0 % teachers never participate in any programmes.

It shows that still some of the teachers do not participate in programme related to health promotion conducted by school. The school should create environment to make the teachers be the active participants of such programme by informing them importance of health promotive programme to decrease this and the teacher's behaviour and activeness are initiative. So he should be active himself to make other active.

Conclusion

At present, school health program for students are implemented in the world and partially in Nepal but it may be unfair and perhaps more difficult to implement school health program for the school employees. Till now there is no good program on production of healthy education teachers in Nepal. The teacher themselves provide knowledge of health promotion to their students strictly but they do not follow the healthy behavior themselves. The government also cannot give more emphasize for health promotion practice. So, the activities/practice of health promotion is going to develop by babyhood.

The health problem in world is going to increase day by day. But due to negligence the person cannot promote his health. Teachers also neglect his health. The teachers have good knowledge about health promotion but they do not apply their knowledge in their real practice. So, their health is going to decrease continuously.

It is found that a very few research has been conducted in health promotion for the teachers in the world and neither effort has been made on it in Nepalese context. So, an effort is made here to bring the problem of Nepalese school teachers in light. Thus the problem is stated as “Knowledge and practice of health promotion among school teachers” as the title of the study.

Maximum teachers of Lakhanpur VDC follow the traditional rule of health so they can not improve their health properly. It is the main problem of study area. The teachers have enough knowledge about health promotion but they can not apply their knowledge in practical life. So, the statement of the problem of this research rises as follows:

Many schools have not at least first aid box. Generally all of the school have not dependable first aid program in Jhapa as well as Lakhanpur VDC. Very few schools have provided the facilities of canteen in school. All of the teachers’ activities are very poor insight of health.

Overall, it is concluded that the situation of understanding and practice of Nepalese teachers on health promotion within the school is found to be unsatisfactory and requires massive research and proper changes of the situation.

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RELIGION AND POLITICS

Shravan Kumar Chaudhary*

"Religion is the opium of the masses".

- Karl Marx

Abstract

This writing is based on historical and philosophical works and articles written by various scholars. There are three purposes of this writing: it attempts to show the close relationship between religion and politics, the two opposite aspects of life, the role of religion in human life, and finally, it also attempts to find the answer behind losing ground of Buddhism in its own sacred land, Nepal. Generally, it has been seen that religions spread in and around their birth places. For example, Islam, Christianity, and Judaism originated in the Middle East and the people of this region are predominantly the followers of these religions and they have spread to other parts of the world as well. Likewise, Hinduism was born in India and its majority of followers are chiefly in India and Nepal. It has not spread like other religions as a dominant religion in other countries. On the other hand, Buddhism has spread far and wide in other parts of the world, mainly in the Asian countries. Unfortunately, it has been on the margin in its own birth place.

Keywords: animism, bigots, ecclesiastical, monotheism, pantheon, polytheism, religion, theology, theocracy etc.

Introduction

Recently, the news articles have surfaced the pages of newspapers in different countries on the topic of religion, particularly in Asia. Several incidents of inciting religious intolerance, hatred towards others, riots, attacks, execution, and lynching the innocent people have occurred in different parts of the world in the name of religion. Therefore, the topic of religion has become one of the burning issues in the twenty first century society due to entrenchment of the so-called political-religious leaders who have taken shelter to religion to fulfil their own political and economic vested interests.

The founders of all religions are, in real sense, the noblest souls the world has created. The great ideas are the product of such revolutionary figures. They have changed the world with their views and thoughts. They are the great thinkers and philosophers whose inspirations have guided the people throughout their lives at every step. They have taught people how to live a pure, happy, and good life. We find a new way of doing politics, new thoughts and philosophies in almost all the fields of life. And religion is also a product of such great thoughts. If we glimpse into the human history, we will find that it is full of religious persecution, wars, riots, violence, and bloodshed in the name of religion more than in any other names. Religion has a noble responsibility of bringing peace, harmony, and prosperity, to make human life nobler and better, but it has made people suffer from the hand of their own fellows who behave

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like wild beasts. Instead of bringing enlightenment, it has brought darkness with it. Religion is a subject of faith in God. The founders of religions have preached peace and harmony, but their followers resort to violence in the name of religion. So the question is: whether people have lost nobility of the past or there are some intolerant bigots who ignite flames of violence or the religious teachings have been misinterpreted or they need to be readjusted.

A great Indian spiritual leader Swami Vivekananda sheds light on the importance of religion in human life. He views that religion is a force that moulds human destiny. It is a greater force than all other forces. It has a cohesive force that brings people of every walk of life together which encompass regions, races, castes etc. Religion is one of the major defining elements of human civilization. Thus we can find a conclusion that both religion and civilization share close links. Christopher Dawson views that "the great religions are the foundations on which the great civilizations rest" (Huntington: 146-53).

The birth of religion

Vivekananda mentions two principles regarding the origin of religions: the spirit theory and the Infinite theory. According to the first theory, religious ideas originated from the concept of worshipping to ancestors and the next theory maintains that the origin of religions should be taken as an act of personifying Nature. Even today people endow the natural forces with personal attributes. They believe that natural forces have also a shape and a soul and power to create or destroy things. "But there is no such a trace even in the oldest records; not even in the *RigVeda*" (Vivekananda: 7-14). Bertrand Russell has also expressed similar views in his work *The Philosophy of Western Mind*. He writes: "Religions were originally fertility cults. The earth was female and the sun male in other religions. Throughout western Asia, the Great Mother was worshipped under various names. In Asia Minor the Greek colonists named her Artemis. This is the origin of "Diana of the Ephesians". Christianity transformed her into the Virgin Mary" (Russell: 16-17).

There is also the third concept regarding the birth of religion. According to this concept, there is a higher state mind than waking and sleeping/ dreaming in which some facts can be realized. This state is known as the ecstasy or inspiration or "spiritual kingdom". This state of mind was realized by the prophets and messengers such as great Hindu Rishis (sages). This fact can be found in Buddhism, too. Lord Buddha went into the state of trance before discovering certain facts regarding human life and sufferings. We find similar views among the Jews and Christians (Vivekananda: 7-14).

It is important to understand some basic principles about different religions in order to know the common elements of the religions:

Hinduism

Hinduism is considered to be the oldest religion in the world. It is believed that Hinduism evolved in India at least 5,000 years ago. According to Hinduism, Brahma,

the supreme god, exists in everything. He is the creator of the Universe. He is omnipresent. It is human duty that he should live such a good life that it breaks the cycle of life and death and become a part of Brahma. The human soul is immortal; it enters a new body after the death of a person. He has four faces and four arms. So he can look in all the directions at the same time and His four arms are a symbol of four points of a compass. The oldest sacred text of Hinduism is the *Vedas* containing hymns to the gods and how the priests should carry out their duties. There are other religious books like the *Upanishads*-philosophical discussions about religious belief, the *Purans*-discussions and explanation to the *Vedas* and *The Laws of Manu*- teachings about everyday life. Their chief gods are Brahma (the creator of the universe), Vishnu (the preserver), and Shiva (the destroyer-controlling life and death) (Parsons & Shaw: 421-22). There is the concept of animism even among the Hindus. They are generally burnt on pyre after the death, but there is also a provision of burial particularly to the hermits/ monks in residing at a monastery.

Islam

Mohammed, the prophet of Islam, was born in Mecca in Arabia in 570 A. C. (After Christ). It is believed that he received the message around 610 A. C. from God. It came in the form of a vision through angel Gabriel, a majestic being. The Muslims believe in one God, Allah, who created this universe. Islam begins with his flight to Madina/ Medina, the city of the prophet in 622 A.D. This flight is called Hijrat (Hegira) in Arabic, and that year is considered as the beginning of the Islamic calendar (Doren:19). After seven years of his flight he returned to Mecca. He died in 632 A. D. He was succeeded by Abu Bakar as a Khalifa or Caliph (chief). In Islam the Khalifas were religious and political heads. Unlike Hinduism, there is the concept of monotheism.

It is believed that the Muslims should carry out five duties that are known as the five Pillars of Islam: Shahadah- declaration that there is no other God and except Allah and their prophet is Muhammad; Salat- they should pray five times a day; Zakah- gift of money should be given to the poor; Sawm- observing fast during Ramadan, and Hajj- making pilgrimage to Mecca (Parsons & Shaw: 468-70). The *Koran* is the sacred text of the Muslims.

Buddhism

Siddhartha Gautama, the Buddha, was born in about 563 B. C. and was enlightened in at the age of thirty five on May 25, 528 (Doren: 21). According to a Buddhist religious book Dhamapada (Way of the law), the word "buddha" means "the awakened one" in Sanskrit and Pali. It is a title that had been bestowed upon the great religious teacher (Siddhatta Gotama (whose name is more commonly seen in its Sanskrit form, Siddhartha Gautama). It says "Buddhism is not a "religion of the book", like Judaism, Christianity, or Islam, all of which are based on a primary body of scriptures. It is a religion of individual practice and enlightenment". There are three divisions (vehicles): Theravada, Mahayana, and Vajrayana. He died at the age of eighty. His enlightenment

is based on the Four Noble Truths: there is a suffering in the world; suffering has a cause; suffering has an end; and a path exists to end suffering (Muller: xix-xxii).

Buddhism is in fact ethical doctrines. The Buddha held that all men are equal by birth and he was against the caste system. His principles have brought social and political progress in many parts of the world. For example, Emperor Ashok, who became a Buddhist monk, renounced war and violence and sought peace with his people and neighbours. Its emphasis is on social equality. Its principle maintains that poverty is the main root of human ills. It has inspired many liberal reform movements in different countries. It also voices against colonial regimes. (Doren: 23). He didn't claim divinity. Likewise, neither Christ nor Mohammad claimed divinity. Buddha didn't approve of image-worship and didn't claim to be a god to be worshipped. The question is: why do people worship his image? Regarding such a query Nehru writes: "He was not represented in images. Image worship was introduced by the Brahmans as a way to bridge the gap between the two religions. They tried to introduce the ideas of Hinduism and symbolism into Buddhism. Thus, images also crept into the shrine of Buddhists. At first the image of Bodhi-Sattvas, the previous incarnation of Buddha, was introduced and finally Buddha's image was also depicted. It was a revolt against the caste system, priest-craft, and ritualism"(Nehru: 81-86).

Christianity

We get the story of Jesus Christ in the New Testament of the *Bible*. He was born in Bethlehem on December 25 in a manger. He was a Jew. He preached in Galilee and came to Jerusalem. He was tried and sentenced by the Roman Governor Pontius Pilate. It is believed that he was taken as a political rebel, not religious. Because the Roman Empire was tolerant to all religions and believed that "if someone insults the gods, let them see it to themselves." said Tiberius, one of the emperors. He was crucified at Golgotha, in Jerusalem in 30 A.D. on Good Friday. The third day after his death is celebrated as Easter Sunday. After his death Paul, a learned man, succeeded him and spread Christianity(Nehru:84-87).

Christinity became the official religion of the Roman empire in 394 A.D. after the conversion of the emperor Constantine. The Roman empire handed Christianity to the barbarians. It was related with philosophical (Platonic) beliefs, morality, and salvation. According to Christian doctrine, "In the beginning was the Word, and the Word was with God, and the Word was God. The same thing was in the beginning with God; all things were made by Him is life, and the life was the light of men, and the light shineth in the darkness, and the darkness comprehends it not...." His teachings (through the *Bible*) are in the form of parables. Christians had an extreme belief that they alone would go to heaven, and that the most awful punishments would, in the next world, fall upon the heathen. The other religions that competed for favour during the third century had not this threatening character (Russell: 310- 29).

Judaism

Judaism came into being in the 13th century B.C. The followers of Judaism are called Jews and Abraham is the founder of Judaism. The sacred text of Judaism is the *Torah*. The Jewish Bible is called *Tenakh* (Parsons & Shaw: 486-87). According to the *Torah*, God- Yahweh/ Jehovah- revealed to the prophet Moses and the ancient Israelites. The description of his life can be found in *Genesis* (beginning of the second millennium B.C.). According to their belief, the Jews were the chosen people of God with the responsibility to bring God's message to the rest of humanity. There is a special and permanent relationship between the Jews and God. Their relationships involve three things: laws were given to them received by Moses on Mount Senai concerned about the rules of diet and behaviour; the promise/ covenant that God would never desert them, their career would be successful, and they should be witness to beings, goodness and justice. The Jews are stubborn regarding this belief and they hold the same belief even today (Doren :15-16).

Hinduism and Islam in India

Human history is the history of struggles. Therefore, it is imperative to mention struggles / clashes among the people of various religions under the leadership of rulers who invaded the territory of each other. Such clashes occurred between the Hindus and the Muslims in India, the origin place of various religions. For example, the Arab invaders came to India (Indus Valley) in 710 A. C. under the leadership of Mohammad of Ghajani (now in Afghanistan) during king Harsha Varadhana of Kanauj (died in 648). It is said that about 50,000 non- Muslims were killed during his reign. They converted the people. Similarly, the Afghan invaders came to India from north-west (in 1186) under the leadership of Shahab-ud-din Ghuri, killed Prithwi Raj Chauhan, the king of Delhi. They were fierce and cruel. They massacred people, converted them, and some migrated to other places. They got built mosques. Qutub-ud-din got built the Qutub Minar, a great tower near Delhi. Many states rose and fell in India (Nehru: 126-211).

Their struggles were chiefly for the control of territories, but they were also motivated by their religions. They also conquered all of Arabia, the Middle East, Persia, North Africa, and Spain. The westward spread of Islam was stopped after their defeat in 732 by the Franks but the eastward spread (the Indian subcontinent, the islands of South China Sea-Java, Sumatra, Celebes and others) continued until the tenth century. (Doren: 103).

In the later days, the Moghal Empire came into existence after the victory of Babar over Delhi (Afghan Sultan) and it lasted from 1526 to 1707. After his death in 1530, his son Humayun succeeded him. He was defeated and drove to Persia. He came back in 1556 and regained the throne. After his death (Six months later) Akbar ruled India from 1556 to 1606.

Hinduism and Buddhism in India

There were struggles between the Hindus and the Buddhists to gain mastery over each other. The Hindu and the Buddhist states lasted for nearly 1400 years then the Muslims took control in the 15th century.

About 325 B. C. an empire appeared in India with the Mauryan Dynasty in Magadha, now in Bihar. Hindu imperialism flourished in India in the Gupta period. It was the period of resurrection of the past Indo-Aryan traditions, culture and Sanskrit learning. It is known as the richest period that gave the *Vedas* and Epics. Kalidas belonged to this period (Nehru: 101- 105).

Chandragupta died in 296 B. C. He was succeeded by his son Bindusara. Ashoka succeeded his father Bindusara in 268 B. C. He converted to Buddhism. Buddhism spread rapidly in India, monasteries grew up -they were called Vihara, and the whole province came to be called Bihar. Gradually, it began to decline. The main reason was that after the death of Ashok in 226 B. C., his descendants were overthrown by their own commander-in-chief, a Brahman, named Pushyamitra. He took the position of the king. Under his kingship Brahminism /Hinduism revived. Brahminism attacked Buddhism and ultimately remained victorious, absorbed and assimilated it. They uprooted Buddhism from the country. They treated the Buddha as an avatar, a god but his teachings/ messages were put aside by leaders of Brahminism. He was taken as one of the gods in the Hindu pantheon. In this regard a Hindu priest named Shankaracharya (born at the end of the 8th century) also played a crucial role. He revived and preached Hinduism- Saivism, and Vaishnavism. He became a great religious leader of the Brahmins. He died in Kedarnath (north Himalayan part) at the age of thirty- two.

Shankaracharya's work *Nitisara* has not been free from the concept of caste system. Although he preached the division of caste system on the basis of character and merit, in practice and reality it was very different, because the Shudras were not entitled to give any opinion. Instead, it was the upper caste ruling people whose opinion was counted. The Brahmins and Kshatriyas, the upper class people, kept others down. Gradually caste systems became rigid. In those early days they were proud, conceited, and looked down upon other races, while there was much democracy in Buddhism. Buddhism was a revolt against caste, priest-craft and ritualism. Gautama Buddha, as a reformer, attacked priestly tyranny and evils which had crept into the Vedic religion. The priests controlled the people's life through different methods and frightened them by quackery, omens, rituals, worships, spells, and witchcraft. (Nehru: 25- 132)

In the context of Nepal, the rulers and their caste-based religion have played a pivotal role in containing Buddhism. Based on the work *Fatalism and Development* by Dor Bahadur Bista, Ramesh Khatri mentions: "The south Indian priest Shakaracharya's visit to Nepal between 788-820 A.D. brought disaster upon the religion (Buddhism). Buddhist institutions were attacked and the products of their work destroyed, with widespread book-burnings. These included not only religious texts, which may have

been seen as rivalling Shankaracharya's version of Saivitic thought, but also other secular literature, works of grammar and dictionaries. The persecution of Buddhists continued till the Rana rule".

Professor S. D. Muni notices the link between religion and politics in Nepal when he writes: "Nepal became a Hindu Rastra constitutionally only in 1962, primarily to legitimize King Mahendra's autocracy. Even without this constitutional provision, Nepal, like India, has been a predominately Hindu society and will remain so for ever"(Aug.3, 2014). Likewise, a Nepalese scholar and columnist Pratyoush Onta writes:" Hinduism has been state-supported for ages. State- backed Hinduism was most importantly manifested during the 19th century in the codification and practice of caste-based differentiation through the provision of national laws known as Muluki Ain. The original Muluki Ain of 1854 propagated by the first Rana premier Jang Bahadur provided a Hindu ideological base for the state.....the state guaranteed inequality based on one's caste"(Aug. 14, 2015). Pramod Mishra, another Nepalese scholar, also echoes him (Onta): "To entertain the idea of making Nepal a Hindu state would mean institutionalization of caste hierarchy." He also mentions that secularism emerged in Europe as a reaction against the internecine religious wars and intolerance. Secularism doesn't mean atheism or anti- Hinduism (Aug. 6, 2015).

After the success of People's Movement of April 2006, Nepal was declared as a secular state by the restored House of Representatives. It was reiterated in the Interim Constitution of 2007. The constitution of Nepal of 2015 (2072 B. S.) has also reiterated this status, but some upper caste leaders are still bickering over the subject and want to reverse the decision of two-third majority of its members. They are using religion for their own personal gain to garner support during the elections. Secularism in Nepal has been exercised for almost one decade without any conflict in the name of religion. And any attempt to disturb this status is sure to open the Pandora's Box. Secularism in a multi-religious country like Nepal works as an umbrella for all the religions. Doesn't declaring Nepal as a Hindu state is like keeping the Lord Buddha, whose identity is so strongly connected with His birth place, and His teachings under a shadow in His own holy land? All the Nepalese people take pride in calling themselves to be the citizens of the land where the Lord Buddha was born. Then will declaring Nepal as a Hindu state remain an inclusive Nation?

Islam and Christianity (Crusades)

During the rule of Bakar and Omar, after the death of Mohammed, the Arabs defeated the Eastern Roman Empire and the holy city of the Jews and Christians. Jerusalem was occupied by the Arabs. Islam and Christianity fought for mastery in Syria, Palestine, and Asia Minor (Turkey). They invaded Syria, Persia, and India in 634, 637 and 664 A.D. respectively and defeated them. Egypt was conquered in 642. The Arab conquests were in the name of a new religion, but their motive was plunder and wealth rather than religion (Russell: 390-91).

The struggles took place between the Muslims and Christians for several years mainly in the Middle East. Their struggles seem to be perennial. These struggles are better known as crusades/ holy wars. We find a description of causes behind their conflicts. The description goes like this: The world didn't come to an end 1000 years after the death of Jesus Christ as the Christians believed. For fear of death many people travelled to Europe selling their properties in Palestine/ Jerusalem. Later on they (the pilgrims) journeyed to Jerusalem. The pilgrims were ill- treated by the Turks (the Seljuq Turks- the old Turks of Central Asia became Muslims) (Nehru: 152). They bore humiliation from the hand of the Turks and returned to Europe. Later on Peter the Hermit, a pilgrim, went to Jerusalem preaching the people to recover the Holy City from the hand of the Muslims. In 1095 A. C. the Church council declared a holy war against the Muslims. Thus began the struggle between Islam and Christianity. Jerusalem was in the hand of the Muslims for 700 years and it was taken from the hand of the Turks by an English general during the Great War in 1918 (Nehru: 178-96). The war of the Popes was religious. Thus their power was increased by the war propaganda. Similarly, after the first century, Christianity and Judaism were hostile towards each other. Christians persecuted Jews and crusades resulted in violent killings. It stimulated anti-Semitism while Mohammedans were more civilized and humane than Christians in the Middle Ages (Russell: 303).

The Dark side of religion

There are darker and more savage elements in religion. Religion is based on rules or teachings propounded by the founders or prophets. Everything is the subject of change in this universe. So, naturally such rules, which had been formed a long time ago, can't hold the same luster. The prophets can never support of sufferings and sacrifice of beings in any pretext. Since such rules are interpreted by the priests or learned men, the arbitrariness of the religious texts can't be avoided. Some flaws are certain to come up. This may cause conflicts in the society as the people can have their own opinions and thoughts regarding them which should be also respected to a certain extent. At the same time, human sentiments should be also respected.

All primitive religions are tribal by birth, not personal and sacrifice has always been an essential part of religion. In all religions certain rituals are performed as a token of expressing respect to gods to promote fertility, vegetation, and rebirth of vitality as we find in Ancient Greece and Asia Minor. Animals and human beings were ceremonially killed in different parts of the world during the evolution of religions. We find such a reference in *The Iliad* by Homer. For example, Atreus' son Agamemnon sacrifices his own daughter Iphigenia to appease the goddess Artemis and obtain a safe passage to Troy for his fleet. During the sixth century such events took place in other parts of the world and fertility rites with such cruel aspects are common even today. The story of sacrifice of Isaac by his father Abraham in *Genesis* is believed to date from the beginning of the second millennium before Christ (It can have various interpretations). Buddhism and Islam were free from human sacrifice from the beginning to this day. Christians and Jews never sacrificed humans (Doren: 14-15).

Likewise, another darker side of religion was the belief that curse is the result of an offence against gods and it is inherited by the offspring of the offender. For example, the curse of Agamemnon was inherited by his daughter Iphigenia. He sacrificed a stag to the goddess Artemis, not the daughter. Therefore, the goddess felt offended by him and he had to soothe her rage. Then her father took Iphigenia for sacrifice to the goddess to obtain a safe passage to Troy for his fleet. But Artemis secretly substituted a deer and she was taken to be one of her priestesses (The Iliad: 40-48).

Therefore, it must be admitted that religion is not very religious by nature. But it may be difficult for many people to agree with such a view. The gods are completely human, differing from men only in being immortal and the possession of supernatural powers (Russell: 22-23). For example, the Buddha (born in Kapilvastu), Lord Rama (born in Ayodhya), Lord Krishna (born in Mathura), Sita (born in Janakpur), Muhammad (born in Mecca), Christ (born in Bethlehem) were all human beings with supernatural powers at a certain stage of time. We also find some human flaws in many gods and goddesses in mythological stories. There are several descriptions of conflicts among gods and even with mortals. Such conflicts expose their cruelty and jealousy. Subjugation of women, the unfortunates, and slaves was common in many religions. For example, the custom of scapegoat took darker form in a civilized society like Greece. The Athenians sacrificed the poor, degraded and deformed persons at the festivals of the Thargelia in May in the sixth century to keep the society safe from imagined evils and natural calamities.(Frazer : 127-35).

Mixing up of religions with politics

Human life in the Middle Ages (500- 1300A.D.) was hard and challenging. The people of this period were facing mainly three challenges in life: the struggle for survival, a world of enemies, and the problem of God. Their life was in a dangerous situation due to poverty, starvation, ruins and death. As a large area of land converted into desert and wasteland, their existence became almost impossible. With growing hardships there were dangers from the predators who prowled like wild beasts.

As their life was full of dangers, protection became their main job. It was very difficult for the laymen to protect themselves. They needed safety from robbers, enemies, and predators. There was lack of civil peace in the society. They lived in the shadow of death. Likewise, the problem of religion was also a great challenge for them. The people were obsessively interested in God and they wanted to understand His ways to man. They tried to discover His purposes in the world. As their life became God-centered, the science of theology began to hold ground in their life. Now there were two cities: the City of Man and the City of God. There was a theological reasoning that we can achieve higher peace and freedom by offering ourselves and our will to Him. Dante quotes in his *Divine Comedy*: "His will is our peace". For centuries people tried to understand God and His will. Christians, the Jews, and the Muslims were God-possessed.

The study of religion is called theology. The term 'theocracy' comes from the Greek language (the Greek terms *theos* means "god" and *kratos* means "power" or "rule"). Charles Van Doren describes the link between religion and politics beautifully in his work *A History of Knowledge*: "In a theocracy, God rules. Aristocracy is the rule of "the best". So it is understandable that God rules through the best. All over the ancient world kings, emperors, and pharaohs had claimed to be gods. For example, all the Roman emperors from Augustus on were worshipped as gods. They were considered to be divine as well as secular rulers of the people for several millenniums. It was believed that God had given the law to the prophets and the Moses as we find in the case of the Jews and the Muslims. And the learned men in the law (the rabbis, mullahs, priests etc.) instructed the people. It was performed through authoritative institutions like a monasteries, churches, synagogues, etc. They possessed the authority to interpret the will of God. They worked as a theocratic form of government. The heads (i.e. the Popes) of such institutions used to establish and perpetuate their rule in order to control the lives of the people. Sometimes conflicts took place between the Popes and the emperors (Doren: 98 -126).

From the time of Gregory VII (late eleventh century) to the middle of the 13th century, there were constant struggles for power between the Church and the monarchs -primarily the Emperor in Europe.(Russell: 399). This kind of struggle for power between them can be found in the play of T. S. Eliot *Murder in the Cathedral* (1935). Saint Thomas Becket, the Archbishop of Canterbury from 1162 to 1170, was murdered in his own cathedral church on December 29, 1170 on Christmas morning. He was involved in a battle to gain legal authority over clergy with Henry II (1154-1189), King of England.

Like Doren, Bertrand Russell also gives us a description of relationship between the divine nation and politics in the following way: "Church government developed slowly during the first three centuries. Bishops were elected; gradually they acquired considerable power over Christians in their own doctrines. The power of bishops in great cities was enhanced by the practice of almsgivings: the offerings of the faithful were administered by the bishop, who could give or withhold charity to the poor. When the State became Christian, the bishops were given judicial and administrative functions". In the modern world, we are accustomed to political organizations. The have political influence and work as a pressure group".

Further he writes:"It was the church that brought philosophical beliefs into the contact of social and political circumstances. The church, like temples, shrines, and mosque, is a social institution built upon creeds, faith and partly philosophy. It has achieved both power and wealth by means of its creeds. The aristocracy, that promoted anarchy, created the feudal system in the Middle Ages and the church succeeded emancipating itself from aristocracy in the 11th century with great difficulty. Until the 14th century ecclesiastics had a monopoly of philosophy and were written from the point of view of the church. In this regard common people also supported the church. The aristocracy

had been barbaric and ignorant. The Emperor was defeated with their support to the Pope and emancipated the economic life from ecclesiastical control. By means of such social institutions and modes of thoughts were introduced by the practical men (clergy) to the world. The moral reform of the church in the 11th was a reaction against the absorption of the church into the feudal system" (Russell 283-313).

We find a similar thing in Islam. It was fierce right from the beginning and its outward manifestation was jihad /holy war. This faith led towards the division mark between Islamists and the rest of the world. It united both the spiritual and the temporal (religious and secular) in one community. It tried to control individual's relationship with God, social and political relationships with the people. As a result, Islamic institutions, laws and States grew up. For example, Ayatollah Khomeini exercises enormous power in Iran (Doren: 20).

Thus, it has been seen that the country where there was a religious bond with the government, political motives played some role to transform its primitive figures. As a result, a god became associated with the State. It was believed that the lawgivers received their codes from a god and a breach of the law became impiety (Russell:17).

Conclusion

There were various superstitions floating in ancient times. Such superstitions are deeply rooted in traditional and undeveloped societies even today. Common people are victims of superstitions due to ignorance. Right education and guidance bring light in human life. But sometimes our prudence is swept away by passion. There is a conflict between human passion and prudence throughout human history. Learning and civilization check uncontrolled impulses of the people through forethought and law. But it is irony that it is not functioning well in the world. To quote Sigmund Freud: "...even today the uncivilized races and the backward classes of all nations are multiplying more rapidly than the cultured elements (Freud: 109-117)." Today religious organizations enjoy much wealth and power and under the cloak of religion they don't hesitate to commit crimes and execute others. Religion is serving as a handmaiden to the religious and political leaders to fulfil their personal interests.

There is a need of guidance of broadminded and generous leaders/teachers in the world who respect the sentiments of the followers of all the religions and who could contain the narrow-minded and intolerant bigots. Religion and politics are based on different principles. Therefore, their close bond has created much tension in our time throughout the world. In the past the conflicts took place for territories, but now they are happening in the name of religions, sects, cultures and races. If people believe in religion, they should believe in truthfulness and morality, the two bases of religion. And morality is not possible without telling the truth. Can one be a religious person who tells a lie? Because God Himself was/ is against falsehood and no religion supports this point. Hinduism also makes a point in this regard. Lord Rama went into exile so that the spoken Words of His father King Dhasharatha wouldn't be falsified. Telling a lie is sin

in religion and sinners are never religious persons in any religion. Does the same thing happen in our time, too? Bertrand Russell writes: "The world's woes were largely due to mysticism, to culpable obscurity of thought; and the first law of morality should be, to think straight. Better the world should perish than that I, or any other being, should believe a lie; that is religion of thought in whose scorching flames the dross of the world is being burnt away."(Durant: 358).

May God shower Ambrosia upon all His beloved children who love Thee!

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EFFECT OF HEAVY METALS IONS ON HUMAN HEALTH

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Abstract

Some heavy metals have bio-importance as trace elements but bio toxic effects of many of them in human biochemistry are of great concern. It is also important to know their sources, and their modes of deposition in polluting the environment, which essentially supports life. These metals are released into the environment by both natural and anthropogenic means, especially mining and industrial activities, and automobile exhausts. When ingested, they form stable bio toxic compounds. These toxic metals are accumulated in the dietary articles of man. Further, food chain polluted with toxic metals and metalloids is an important route of human exposure and may cause several dangerous effects on human.

Keywords: contamination, heavy metals, human health, metal toxicity

Introduction

There are around thirty chemical elements that play a pivotal role in various biochemical and physiological mechanisms in living organisms, and recognized as essential elements for life. Majority of the known metals and metalloids are very toxic to living organisms and even those considered as essential, can be toxic if present in excess. Concentrations of several toxic metal and metalloids have been largely increased as a result of human activities. They can disturb important biochemical processes, constituting an important threat for the health of plant and animals. Plants and animals absorb these elements from soils, sediments, and water by contact with their external surfaces, through ingestion and also from inhalation of airborne particles and vaporized metals [1, 2]. Heavy metals enter the environment by natural and anthropogenic means. Such sources include: natural weathering of the earth's crust, mining, soil erosion, industrial discharge, urban runoff, sewage effluents, pest or disease control agents applied to plants, air pollution fallout, and a number of others [3]. Although some individuals are primarily exposed to these contaminants in the workplace, for most people the main route of exposure to these toxic elements is through the diet (food and water). The contamination chain of heavy metals almost always follows a cyclic order: industry, atmosphere, soil, water, foods and human. There has been increasing concern, mainly in the developed world, about exposures; intakes and absorption of heavy metals by humans [4,5]. Animals including human generally get exposed to the toxicants through: (a) respiratory (for gaseous and particulate matters); (b) the skin (chemicals able to cross skin barrier); (c) digestive tract (for food contaminants). After entering the body the metal deposited in nasopharyngeal, tracheobronchial, or pulmonary compartments may be transported through the mucociliary action to the gastrointestinal tract. Food is a principal source of essential and toxic elements. Some elements like mercury (Hg) are biologically magnified at higher tropic level [6]. If an individual is deficient in minerals and trace elements its body will absorb heavy metals on their place. Every cell membrane breaks down and rebuilds every two weeks but does not

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release the heavy metals if essential fats are not properly ingested or if poor quality fats are ingested. [7,8]. Thus, a diet poor in micronutrients can lead to enhancement in the toxicity. hypertension, coronary artery disease (CAD), diabetes and cancer vary depending upon genetic susceptibility as well as environmental pollutants generated as a consequence of numerous chemicals, metal ions and metalloids. Rapid changes in diet and lifestyle may influence heritability of the variant phenotypes that are dependent on the nutraceutical or functional food supplementation for their expression [9].

Sources and Emission

Metal containing industrial effluents constitute a major source of metallic pollution of hydrosphere. The chief toxic metals in industrial effluents are shown in table-1

Table 1: Toxic Metal in Industrial Effluents	
Metal	Manufacturing Industries
Arsenic	Phosphate and Fertilizer, Metal Hardening, Paints And Textile
cadmium	Phosphate Fertilizer, Electronics, Pigments And Paints
chromium	Metal Plating, Tanning, Rubber And Photography
copper	Plating, Rayon And Electrical
Lead	Paints, Battery
Nickel	Electroplating, Iron Steel
Mercury	Chlor-Alkali, Scientific Instruments, Chemicals

The tolerable daily intake approach

Many international scientific organization including WHO have used the safety factor approach for establishing acceptable or tolerable intakes of substances that exhibit threshold toxicity. The acceptable daily intake (ADI) or tolerable daily intake (TDI) or provisional tolerable weekly intakes (PTWI) are used to describe "safe" levels of intake for several toxicants including toxic metals [10-12]. For chemicals that give rise to such toxic effects, a tolerable daily intake (TDI), i.e. an estimate of the amount of a substance in food, expressed on a body weight basis (mg.kg⁻¹ or mg.kg⁻¹ of body weight) that can be ingested over a lifetime without appreciable health risk. Exposure exceeding the TDI value for short periods should not have deleterious effects upon health. However, acute effects may occur if the TDI is substantially exceeded even for short periods of time. Besides, contaminants possessing very long half-lives can be accumulated in the body and chronic effects are most often observed when critical concentrations are reached in target tissues.

Heavy metals

The most common health hazardous metals are represented as follows:

Arsenic

Arsenic can be released in larger quantities through volcanic activity, erosion of rocks, forest fires, and human activity. Arsenic is also found in paints, dyes, metals, drugs, soaps and semi-conductors. Animal feeding operations and certain fertilizers and pesticides can release high amounts of arsenic to the environment as can industry practices such as copper or lead smelting, mining, and coal burning[13]. Arsenic has been reported to vary in: (a)

blood, from 1.5 to 2.5 $\mu\text{g L}^{-1}$; (b) hair, from 0.25 to 0.88 $\mu\text{g L}^{-1}$; and (c) urine the average concentrations are between 20 and 50 $\mu\text{g L}^{-1}$ [39, 40]. In the environment arsenic is usually found combined with other elements as inorganic and organic forms. Inorganic arsenic is known to be more poisonous than organic one. Arsenic trioxide (As_2O_3) is the most common inorganic arsenical in air, while arsenates or arsenites occur in water, soil, or food. Arsenic concentration is high in marine food. [14]

Health effects

Arsenic is odourless and tasteless. Inorganic arsenic is a known carcinogen and can cause cancer of the skin, lungs, liver and bladder.

- Lower level exposure can cause nausea and vomiting, decreased production of red and white blood cells, abnormal heart rhythm, damage to blood vessels.
- Ingestion of very high levels can possibly result in death.

Regulatory limits

- Environmental Protection Agency (EPA) - 0.01 parts per million (ppm) in drinking water.
- Occupational Safety and Health Administration (OSHA) - 10 micrograms per cubic meter of workplace air ($10 \mu\text{g}/\text{m}^3$) for 8 hour shifts and 40 hour work weeks [15]

Cadmium

Cadmium is a very toxic metal. All soils and rocks, including coal and mineral fertilizers, contain some cadmium.[25] Cadmium in the environment is toxic to plants and animals and many micro-organisms. Cadmium does not degrade in the environment .It undergoes bioaccumulation in the kidneys and liver of vertebrates and invertebrates. Cadmium enters the environment from a variety of anthropogenic sources. Wastewater is key source of environmental cadmium contamination and diffuse pollution occurs through industrial air emissions and widespread use of fertilizers on agricultural soils. Plants (including rice and tobacco) that are grown in contaminated soils take up cadmium and lead to human dietary (and inhalation) exposures. Diets high in meat (especially liver and kidneys) or products from marine mammals may result in a particularly high intake of cadmium [17]. Cadmium is readily taken up by plants. Some root crops(carrots and parsnip) and some leafy crops (lettuce and spinach) are able to accumulate more cadmium compared to other plant foods. Grain crops like rice and wheat can accumulate relatively high amounts of cadmium. Internal organs of mammals such as liver and kidneys may also contain high amounts of cadmium. The dietary cadmium absorption rate in humans has been estimated at 5 % of its total intake[18]. The daily intake of cadmium was estimated at 25-60 μg for a 70 kg person from uncontaminated areas but values may rise up to 10 to 61 $\mu\text{g day}^{-1}$. Cadmium is a normal constituent of tobacco. The cadmium content in tobacco ranges between 1-2 $\mu\text{g g}^{-1}$ dry weight, equivalent to 0.5-1 $\mu\text{g cigarette}^{-1}$. Approximately 10 % of the inhaled cadmium oxide is deposited in lung tissues, and another 30-40 % is absorbed into systemic blood circulation in smokers. Smokers have 4-5 times higher cadmium levels in blood and 2-3 times greater amounts of that in their kidneys as compared to non-smokers . [19]

Health effects

Cadmium and cadmium compounds are known human carcinogens.

- Ingesting very high levels severely irritates the stomach, leading to vomiting and diarrhea.
- Long-term exposure to lower levels leads to a buildup in the kidneys and possible kidney disease, lung damage, and fragile bones. Cadmium is a cumulative toxicant and carcinogenic that affects kidneys, generates various toxic effects in the body, disturbs bone metabolism and deforms reproductive tract as well as endocrine system. There are several morph pathological changes in the kidneys due to long-term exposure to cadmium.

Regulatory limits

- EPA – 5 parts per billion (ppb) or 0.005 parts per million (ppm) of cadmium in drinking water
- OSHA – an average of 5 micrograms per cubic meter of workplace air for an 8-hour workday, 40-hour work week. [20]

Lead

As a result of human activities, such as fossil fuel burning, mining, and manufacturing, lead and lead compounds can be found in all parts of our environment. This includes air, soil, and water. [21] . Lead enters the human body in many ways. It can be inhaled in dust from lead paints, or waste gases from leaded gasoline. It is found in trace amounts in various foods, notably fish, which are heavily subjected to industrial pollution. Plants can absorb Pb from soils . Pb can contaminate water and consequently enter the aquatic food chains [31]. Pb is a toxic metal and most people and animals receive the largest portion of their daily Pb intake *via* food. Pb can enter food during storage and manufacture ,e.g. in canned food and in alcoholic drinks. Cosmetics are also an important source of Pb contamination. The amount of Pb absorbed depends on age and the extent to which Pb particles are dissolved in the stomach. The proportion of Pb absorbed from the gastrointestinal tract is about 10% in adults, whereas levels of 40-50 % have been reported for infants.[23-25].

Health effects

EPA has determined that lead is a probable human carcinogen. Lead can affect every organ and system in the body. Long-term exposure of adults can result in decreased performance in some tests that measure functions of the nervous system; weakness in fingers, wrists, or ankles; small increases in blood pressure; and anaemia.

- Exposure to high lead levels can severely damage the brain and kidneys and ultimately cause death.
- In pregnant women, high levels of exposure to lead may cause miscarriage.
- High level exposure in men can damage the organs responsible for sperm production[36]

Mercury

Mercury combines with other elements to form organic and inorganic mercury compounds. Metallic mercury is used to produce chlorine gas and caustic soda, and is also used in thermometers, dental fillings, switches, light bulbs, and batteries. Mercury in soil and water is converted by microorganisms to methyl mercury, a bio accumulating toxin.[27] Mercury (Hg) and its compounds are highly toxic, especially methyl mercury - a potent neurotoxin. It has caused a significant number of human fatalities in several accidents around the world. Due to its wide dispersion through the atmosphere, Hg is considered a global pollutant. It is biomagnified through the food chain. Hg use in dental amalgams, thermometers, barometers, and the development of large-scale industrial processes (e.g. chlor-alkali plants and PVC production) and release into the environment. Diet(especially seafood) can be the main source of inorganic and organomercuric inhalation. While dental amalgams are the main exposure source to elemental Hg [28].

Health effects

- Exposure to high levels can permanently damage the brain, kidneys, and developing fetuses. Effects on brain functioning may result in irritability, shyness, tremors, changes in vision or hearing, and memory problems.
- Short-term exposure to high levels of metallic mercury vapors may cause lung damage, nausea, vomiting, diarrhoea, increases in blood pressure or heart rate, skin rashes, and eye irritation.

Regulatory limits

- EPA – 2 parts per billion parts (ppb) in drinking water
- OSHA – 0.1 milligram of organic mercury per cubic meter of workplace air and 0.05 milligrams per cubic meter of metallic mercury vapor for 8-hour shifts and 40-hour work week.[29]

Selenium

Selenium is a trace mineral widely distributed in most rocks and soils. Processed selenium is used in the electronics industry; as a nutritional supplement; in the glass industry; in plastics, paints, enamels, inks, and rubber; in the preparation of pharmaceuticals; as a nutritional feed additive for poultry and livestock; in pesticide formulations; in rubber production; as an ingredient in antidandruff shampoos; and as a constituent of fungicides. Radioactive selenium is used in diagnostic medicine.

Health effects

Selenium is toxic in large amounts, but trace amounts of it are necessary for cellular function in most, if not all, animals. For humans, selenium is an essential trace nutrient. For example, selenium plays a role in the element functioning of the thyroid gland. The Tolerable Upper Intake Level is 400 micrograms of selenium per day. Consumption above that level can lead to selenosis .

- Short-term oral exposure to high concentrations can cause nausea, vomiting, and diarrhoea.
- Chronic oral exposure to high concentrations can produce selenosis. Major signs of selenosis are hair loss, nail brittleness, and neurological abnormalities.
- Brief exposures to high levels in air can result in respiratory tract irritation, bronchitis, difficulty breathing, and stomach pains. Longer-term exposure can cause respiratory irritation, bronchial spasms, and coughing.

Regulatory limits

- EPA – 50 parts per billion of selenium (50 ppb) in drinking water.
- OSHA – 0.2 mg per cubic meter of workroom air for an 8-hour work shift.[30].

Chromium

Chromium is found in rocks, animals, plants, and soil and can be a liquid, solid, or gas. Chromium compounds bind to soil and are not likely to migrate to ground water but, they are very persistent in sediments in water. Chromium is used in metal alloys such as stainless steel; protective coatings on metal (electroplating); magnetic tapes; and pigments for paints, cement, paper, rubber, composition floor covering and other materials. Its soluble forms are used in wood preservatives.

Health effects

Chromium (VI) compounds are toxins and known human carcinogens, whereas Chromium (III) is an essential nutrient.

- Breathing high levels can cause irritation to the lining of the nose; nose ulcers; runny nose; and breathing problems, such as asthma, cough, shortness of breath, or wheezing.
- Skin contact can cause skin ulcers. Allergic reactions consisting of severe redness and swelling of the skin have been noted.
- Long term exposure can cause damage to liver, kidney circulatory and nerve tissues, as well as skin irritation.

Regulatory limits

- EPA– 0.1 ppm (parts per million) in drinking water.
- OSHA – an average of between 0.0005 and 1.0 milligram per cubic meter of workplace air for an 8-hour workday, 40-hour workweek, depending on the compound.[31]

Copper

Copper is a naturally-occurring metallic element that occurs in soil at an average concentration of about 50 parts per million (ppm). It is present in all animals and plants and is an essential nutrient for humans and animals in small amounts. The major sources of environmental copper releases include the mining, smelting and refining of copper, industries producing products from copper such as wire, pipes and sheet metal, and fossil fuel combustion. The principal source of copper in drinking water results from the leaching of copper from pipes and bath fixtures due to acidic water. Blue-green stains left in bath fixtures are a sign of the presence of copper in water. Other releases of copper to the environment include agricultural use against plant diseases and treatments applied to water bodies to eliminate algae.

Health Effects

- Effects of copper deficiency can include anaemia, low numbers of white blood cells, osteoporosis in infants and children, and defects in connective tissue leading to skeletal problems. Short-Term (Acute) Effects Acute poisoning from ingestion of excessive copper can cause temporary gastrointestinal distress with symptoms such as nausea, vomiting, and abdominal pain. High levels of exposure to copper can cause destruction of red blood cells, possibly resulting in anaemia.
- Long Term (Chronic) exposure to copper can damage the liver and kidney[41].

Nickel

Nickel is a compound that occurs in the environment only at very low levels. It can be found in common metal products such as jewelry. Foodstuffs naturally contain small amounts of nickel. Chocolate and fats are known to contain severely high quantities. Nickel uptake will boost when people eat large quantities of vegetables from polluted soils. Plants are known to accumulate nickel and as a result the nickel uptake from vegetables will be eminent. Smokers have a higher nickel uptake through their lungs. Finally, nickel can be found in detergents. Humans may be exposed to nickel by breathing air, drinking water, eating food or smoking cigarettes. Skin contact with nickel-contaminated soil or water may also result in nickel exposure. In small quantities nickel is essential, but when the uptake is too high it can be a danger to human health.[42]

An uptake of too large quantities of nickel has the following consequences: Higher chances of development of lung cancer, nose cancer, larynx cancer and prostate cancer Sickness and dizziness after exposure to nickel gas Respiratory failure, Lung embolism, Birth defects, Asthma and chronic bronchitis, Allergic reactions such as skin rashes, mainly from jewellery,

Heart disorders. Nickel fumes are respiratory irritants and may cause pneumonitis. Exposure to nickel and its compounds may result in the development of a dermatitis known as “nickel itch” in sensitized individuals. The first symptom is usually itching, which occurs up to 7 days before skin eruption occurs. The primary skin eruption is erythematous, or follicular, which may be followed by skin ulceration. Nickel sensitivity, once acquired, appears to persist indefinitely. [34]

Tin:

Inorganic tin compounds usually enter and leave your body rapidly after you breathe or eat them, they do not usually cause harmful effects. However, humans who swallowed large amounts of inorganic tin in research studies suffered stomach-aches, anaemia, and liver and kidney problems. Studies with inorganic tin in animals have shown similar effects to those observed in humans.

Health effects

Inhalation (breathing in), oral (eating or drinking), or dermal exposure (skin contact) to some organo tin compounds has been shown to cause harmful effects in humans, but the main effect will depend on the particular organo tin compound. There have been reports of skin and eye irritation, respiratory irritation, gastrointestinal effects, and neurological problems in humans exposed for a short period of time to high amounts of certain organo tin compounds. Some neurological problems have persisted for years after the poisoning occurred [35].

Silver

Silver usually combines with other elements such as sulphide, chloride, and nitrate. Silver is used to make jewellery, silverware, electronic equipment, and dental fillings. Silver metal is also used in electrical contacts and conductors, in brazing alloys and solders, and in mirrors. Silver compounds are used in photographic film. Dilute solutions of silver nitrate and other silver compounds are used as disinfectants and as an antibacterial agent.

Health effects

- Exposure to high levels for a long period may result in a condition called argyria, a blue-gray discoloration of the skin and other body tissues. Argyria appears to be a cosmetic problem that may not be otherwise harmful to health.
- Exposure to high levels of silver in the air has resulted in breathing problems, lung and throat irritation, and stomach pains.
- Skin contact with silver can cause mild allergic reactions such as rash, swelling, and inflammation in some people.

Regulatory limits

- EPA—recommends concentration in drinking water not to exceed 0.10 parts per billion (ppb).

- OSHA – in workplace air, 0.01 milligrams per cubic meter (0.01 mg/m³) for an 8-hour workday, 40-hour workweek.[36]

Conclusion

Heavy metals have been proved to be toxic to both human and environmental health. Owing to their toxicity and their possible bioaccumulation, these compounds should be subject to mandatory monitoring. based on experimental studies, the advances of toxicology has improved our knowledge about human exposure to toxic elements (metals and metalloids) and their health effects, such as developmental retardation, several types of cancer, kidney damage, endocrine disruption, immunological, neurological effects and other disorder. Governments should promote harmonized data collection, research, legislation and regulations, and consider the use of indicators. Different assessment methods provide useful data helping to set standards and guideline values designed to protect human and environmental health from heavy metals contaminants. The ongoing research works throw more light onto new insights and biochemical and molecular mechanisms involved in the development of pathological conditions in human.

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FINANCING TO AGRICULTURE AND EFFORTS OF NEPAL RASTRA BANK IN NEPAL

Ramu Paudel*

Background

Economic growth depends upon the investment of capital as well as the productivity of the capital. Investment alone cannot achieve the growth in the absence of productivity. Productivity is itself an innovative and relies on technological state, state of employed labor and most importantly the structure of economic policy of the nation. The economic growth should be calibrated on the prioritization of the economic sector for the efficient allocation of the resources. Agriculture has traditionally been characterized as the mainstay of the Nepalese economy in spite of the growing importance of other service sectors in Nepal. Nepal has remained essentially an agrarian economy. In the context of the Nepalese economy, agriculture is tied to various sectors and is essentially for generating broad based growth and development. Agriculture is therefore fundamental to the sustenance of life and has become the bed rock of economic development as it still accounts for significant share in Gross Domestic product (GDP), total exports and employing the bulk of the total labour force.

The contribution of agriculture to the GDP was more than 62.0 percent before 1980s. It was more than 90.0 percent before 1956 A.D at the time when Nepal Rastra Bank established as a central of Nepal. In the decade of 1990s it has been declined to 51.0 percent and it has further declined to 40.0 percent in 2000 A.D. Then, by now it has been contracted stood around 33.0 percent in 2015. This was partly due to the expansion of other economic sectors such as industry and service and partly as a result of the disincentives created by macroeconomic environment in other sectors at that time. Similarly, the growth rate of agricultural productivity exhibited a downward trend at that time. Thus; agricultural productivity stagnated at a time when the population growth rate was around 2.5 percent per annum. This period also witnessed a slow growth due to lack of coherent policies in agriculture credit. As a result of this growth gradually witnessed a sharp decline in exportation of cash crop production while food production increased marginally such that the increase could not meet the demand of the alarming increase in population. Hence, domestic food supply had to be augmented through large imports. Despite all these, agriculture remained a vital pursuit in Nepal. Unfortunately, agricultural financing has suffered a major setback in Nepal through some inhibiting factors. The factors include low agricultural productivity, lack of capital and credit facilities, inadequate availability of inputs and storage facilities, lack of conducive and enabling environment, weak agricultural extension delivery and outdated infrastructure. Based on the above inhibiting factors, there is the need to mobilize more financial resources to enhance and boost agricultural productivity in Nepal through the provision of modern technology and mobilization of financial resources for re – positioning the agricultural sector in Nepal.

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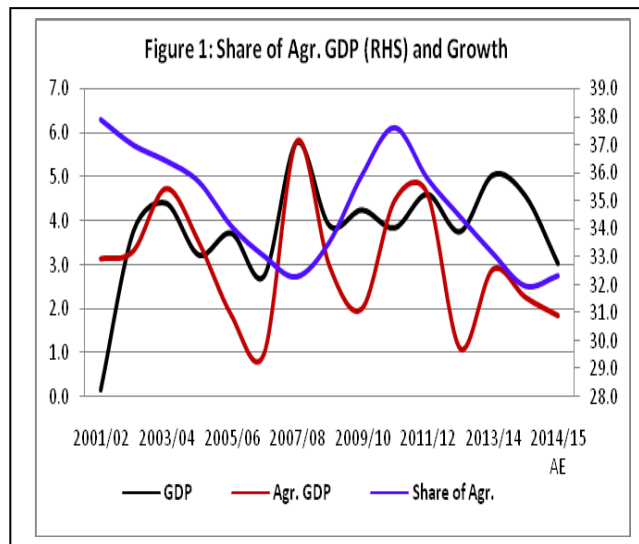
However, Agricultural operations in Nepal over the past years have been quite primitive and productivity remained very low due to inadequate application of modern technology. The cost of agricultural machinery like tractors, harvesters, planters and so on are astronomically high and are out of the reach of an average Nepalese farmer. Also included is inadequate supply of critical inputs such as hybrid seeds, fertilizers and agro - chemicals at the appropriate time and at affordable prices have remained major constraints to increased agriculture productivity in Nepal.

The Nepal government has been intervening in the agricultural sector through its policies, programmes and strategies to increase production and strengthen the sector so as to play its expected role in the development process but such efforts have not been fruitful despite the size of resources committed. Various work has been carried out on to increase the agriculture productivity, economic growth and wealth creation, agricultural productivity remained low due to the neglect of the importance of constant supply of money and other agricultural facilities or resources that may likely arouse interest in agricultural practices and undertakings.

Current State of Agriculture

Nepal is an agro-based country whose more than 70.0 percent citizen still relies on the agriculture as the major source of income. Even though majority of the citizens have occupation as farmer, many of them don't even possess their own land i.e. needless to say they are landless. Agriculture is that factor field which is most responsible for economic growth in Nepal. Till 2006 agriculture itself held 39.5 percent and of the total economy while looking into the indicator of GDP and now stood at 32.5 percent in 2014/15. This means still now agricultural sector covers more than one third of the total national economy. If only we could concentrate upon the new approaches for systematic and scientific agricultural system then our national economy growth would reach a greater height. This would ultimately solve the poor economic condition of our citizens and later prosperity would prevail. There has always been much neglect regarding the agricultural sector for ages. Realization of better country's economy with prosperous agricultural sector is there but unwillingness to act upon it is a problem.

Farmers of more than 53.0 percent of the fertile land have unheard the irrigation facility yet and still depend upon rain water for cultivation. Lack of proper education or



training, farmers apply same old fashioned way of farming that yields less than that with new techniques. Likewise, orchards of Humla and Jumla are inaccessible for the people of Kathmandu due to no proper transportation facility resulting to rotting of those products. Some farmers don't have lands for their own to cultivate whereas some have unlimited lands that are left barren. Thus, there happens to be many problems in the agricultural sector that had to be addressed by the government.

Hence, budget has to be reconsidered and a reform in agriculture and better provisions has to substitute other vague and less important sectors. Agriculture sector comprises almost one third share in GDP (32.5 percent), employs large percentages of population and one fourth share in export. The production of agriculture and forestry sectors is estimated to grow by just 1.8 percent in 2014/15 and growth of this sector averaged 3.0 percent during the last five years. The import of agriculture goods such as rice, vegetables and fruits have been increased significantly in recent years. The import of paddy/rice surged to Rs.25.0 billion in year 2014/15 which was Rs.17.26 billion in the previous year. Likewise the import of vegetables, fruits were accounted Rs.8.0 billion ad Rs.4.0 billion in year 2014/15. The ballooning import of agro products is one of the major components of widening trade deficit. Although the earthquake struck Nepal in the tenth month 2014/15, the impact on growth seems to be sizable; this is then estimated to have grown by only 3.0 percent. In 2015/16, a subpar monsoon will constrain agriculture growth, while the expected delay in getting reconstruction started, coupled with economic dislocation and damage to infrastructure, will curtail overall growth, including the agriculture sector in Nepal.

Agriculture Finance

Agricultural finance generally means studying, examining and analyzing the financial aspects pertaining to farm business, which is the core sector of Nepal. The financial aspects include money matters relating to production of agricultural products and their disposal. Agricultural finance can be dealt at both micro level and macro level. Macro-finance deals with different sources of raising funds for agriculture as a whole in the economy. It is also concerned with the lending procedure, rules, regulations, monitoring and controlling of different agricultural credit institutions. Hence macro-finance is related to financing of agriculture at aggregate level. Micro-finance refers to financial management of the individual farm business units. And it is concerned with the study as to how the individual farmer considers various sources of credit, quantum of credit to be borrowed from each source and how he/she allocates the same among the alternative uses within the farm. It is also concerned with the future use of funds. Therefore, macro-finance deals with the aspects relating to total credit needs of the agricultural sector, the terms and conditions under which the credit is available and the method of use of total credit for the development of agriculture, while micro-finance refers to the financial management of individual farm business.

Significance of Agricultural Finance

- Agriculture finance assumes vital and significant importance in the agro-socioeconomic development of the country both at macro and micro level.
- It is playing a catalytic role in strengthening the farm business and augmenting the productivity of scarce resources. When newly developed potential seeds are combined with purchased inputs like fertilizers & plant protection chemicals in appropriate / requisite proportions will result in higher productivity.
- Use of new technological inputs purchased through farm finance helps to increase the agricultural productivity.
- Accretion to in farm assets and farm supporting infrastructure provided by large scale financial investment activities results in increased farm income levels leading to increased standard of living of rural masses.
- Farm finance can also reduce the regional economic imbalances and is equally good at reducing the inter-farm asset and wealth variations.
- Farm finance is like a lever with both forward and backward linkages to the economic development at micro and macro level.
- As agriculture is still traditional and subsistence in nature, agricultural finance is needed to create the supporting infrastructure for adoption of new technology.
- Massive investment is needed to carry out major and minor irrigation projects, rural electrification, installation of fertilizer and pesticide plants, execution of agricultural promotional programmes and poverty alleviation programmes in the country.

Agricultural Credit Market, Need, Types and Sources

Agriculture sector is the mainstay of the economy of Nepal and it accounts for one third of GDP. It employs large population directly engaged in agriculture but it contributes low export earnings and as a result of this import has been surged in the last decades and making alarming trade deficit with huge expenses of foreign exchange reserve for financing the imports. Though, agriculture is an important large market and industry, yet it is far away from the availability of financial resources. Agricultural credit is linked with growth of agriculture, whereas rural finance covers all the aspects of socio-economic life of rural area. It covers a wide variety of farm and non-farm productive activities such as agriculture, animal husbandry, fisheries, forestry, small agro-based industries as well as development of physical and social infrastructure in the form of transport and communication, water and power, education and health. Credit is required in every type of business and agriculture is not exception of it. The need for agriculture credit becomes more important when it moves from traditional subsistence to modern commercialization. The agriculture sector at present is based with number of handicaps. The land holding is very small. The population is growing at a faster rate. Agricultural labour is often under-employed. Production suffers from weather risks. The capacity of farmers to save and invest is very low. The agricultural productivity is low due to low use of inputs. The farmers therefore, need credit to increase productivity and efficiency in agriculture. This need is increasing over the years with the rise in use of fertilizers,

mechanization and rise in prices. Briefly the need for agricultural credit can be summed up as follows;

- Purchase of new inputs
- Purchase of implements
- Better management of risk
- Permanent improvement in land
- Better marketing of crops
- Facing crises
- Balanced development

Types of Agriculture Credit

- **Short-Term Credit:** The short term credit ranges up to one year. The farmers need short term credit for meeting the working capital arrangements of agriculture. For instance, they need short term credit for the purchase of seeds, fertilizers, pesticides, bullocks and other casual expenses. Sometimes short term credits are also raised for paying rents, revenue and also meeting the financial requirements of the family. The short term credit is repaid after marketing the product of next crop.
- **Medium Term Credit:** The medium term loan extends from 1 to 5 years. The farmers require medium term credit for the purchase of cattle, purchase of implements, improvements in water courses etc. The loan is obtained on the security of movable and implements.
- **Long Term Credit:** The duration of long term credit exceeds five years. The farmers need long term credit for making improvements of permanent nature in land such as sinking of tube wells, reclamation of land, building, purchase of machinery and implements etc.

Sources of Agriculture Credit

- **Non-Institutional Sources/ Informal Sources:** The major non-institutional sources of farm credit in Nepal are money lenders, friends, relatives, shopkeepers and commission agents. The lenders of the informal sources (friends, relatives etc) have certain advantages over the formal credit sources. The informal lenders usually know the borrowers personally. They require little security for advancing loans. The loans are given for consumption as well as production purposes. The lenders are approachable at all times. They are also lenient in rescheduling loans. However, informal lenders are also accused of charging higher rates of interest. They extract monopoly profits from the borrowers.
- **Institutional Sources/ Formal Sources:** The institutional and formal sources are the banks and financial institutions mostly regulated by the central of Nepal (Nepal Rastra Bank) in Nepal. Moreover, the cooperatives and other formal sources of financial institutions and saving and credit cooperatives have been also engaged in agricultural financing in Nepal with a very limited capacity, quantity and volume both in rural and urban areas. The formal source, especially the BFIs in Nepal as per the regulation issued by the NRB provides agriculture credit for (1). Development loans (2) Production loans (3) Agri-business loans (4) Cottage industry loans and (5) off farm income to farmers generating activities loans.

Effort of NRB for Agricultural Credit in Nepal

In Nepal Agriculture Development Bank (ADB) was established to provide agriculture credit to farmers in 2024 B.S. Likewise, other BFIs were also authorized by NRB to establish and provide the financial services along with others and to extend the agricultural credit, but remained mostly reluctant in this area despite of different types and numbers of BFIs reached more than 200 with around 4000 branch network in various geographical areas in Nepal. Although, the BFIs, since then, are providing loans to the farmers for meeting their short and medium term requirements has not been sufficient and as it is required. It is negligible both in percentage and volume of total loan extended by them. The agricultural loans are advanced to the farmers against the security of land, crops, and fixed assets and even on personal security and BFIs disburse agricultural credits for the purchase of inputs, cattle, tractors, dairy farming, installation of tube wells etc. In Nepal BFIs provide loans under the regulated credit scheme of NRB and outside of this scheme. In addition to the BFIs regulated by the NRB, cooperatives are oldest institutional sources of agriculture credit in Nepal but their performance in the spread and utilization of credit to the small farmers is not satisfactory. NRB has made the following efforts since its establishment for the development of agricultural sector and credit to agriculture.

- Establishment of Agriculture Development Bank (2024).
- Directed Credit Program (2031).
- Micro Credits for woman, Third Animal Husbandry Program, Western Poverty Alleviation Program and other targeted credit program in different times in various geographical reasons of Nepal.
- Deprived Sector Lending Requirement to BFIs. At present BFIs of A, B and C class should provide minimum of 5.0, 4.5 and 4.0 percent loan in the specified deprived sector.
- Liberal Licensing policy of opening BFIs for making access of rural credit.
- Establishment of Co- operatives with limited banking facilities in the past decade.
- Establishment of Rural Self Reliant Fund and financing for agriculture groups through cooperatives.
- Mandatory regulation for BFIs to disburse minimum of 20.0 percent of total loan to the Productive Sector and of which at least 12.0 percent to agriculture and energy sector. Likewise, both B and C class BFIs made mandatory to disburse minimum of 15.0 and 10.0 percent of total loan in the productive sector by mid-July 2016.
- Refinance facility at 4.0 percent for the loans that have been disbursed to agriculture, fishery, and poultry and among others.
- Easy refinance loan provision at 1.0 percent for the agriculture and small business based income generating activities in poverty stricken areas and the districts which have high density of poverty.
- Agriculture loan at 6.0 percent to the youths and 4.0 percent subsidy in interest.
- Provision of providing loan in to commercial agriculture, small and medium enterprises and the income generating activities in earthquake stricken areas up to 1.0 million against the collateral without access of motor able road.

Recent Status and Constraints

In Nepal the loans extended by the BFIs are mostly utilized by big farmers in the name of small farmers but in fact those are not in agriculture business. Nepalese banking sector comprises 30 commercial Banks, 73 Development Banks, 47 Finance Companies, 40 Micro finance Development Banks as at mid- Dec 2015. Likewise, there are 16 cooperatives and 31 NGOs that are licensed by NRB. Financial Institutions collect the scattered deposit from the surplus sector and mobilizes for the capital formation in the productive sector and thereby support economic growth. The deposit mobilization and credit disbursement stood Rs.1872 billion and Rs.1440 billion respectively as on mid-Dec 2015. Agriculture loan (including fishery) provided by BFIs reached to Rs. 66.5billion and stood 4.6 percentages in the six months of 2015/16. While the same with addition to agriculture, fishery and production related stood at 23.3 percent in mid-Jan 2016 and the deprived sector loan stood at 4.9 percent in the same period. These facts show that still the mandatory requirement in agriculture credit has not been fulfilled by the BFIs but ready to pay penalty rather than extending loans in the agriculture sector. Despite various effort made by the central bank of Nepal for increasing agricultural credit and expansion of financial services in the rural areas for access and inclusion, BFIs still remain reluctant to extend the loan in the targeted areas. Some progress in this matter has been achieved in the past few years along with the announcement of mandatory productive sector credit policy and deprived sector credit policy but still the agriculture financing has not been reachable to the required areas and people both in urban and rural areas of Nepal. The reasons of low credit flow to agriculture sector in Nepal can be analyzed in the following two ways:

Fiscal Year	Agriculture Loan (in percentage of total loan)
039/40	15.9
2049/50	24.8
2059/60	11.0
2067/68	2.7
2059/70	4.2
2070/71	4.5
2072/72	4.7

Supply Side Constraints

- BFIs are not encouraging to disburse agriculture credit as such type of loan is small in size and high administrative cost which may not earn more profit.
- Generally the BFIs require the sound collateral back up to provide the loan. Most of the farmers have not enough property that can be mortgaged to get the loan.
- There is high risk of being low production of crops due to unfavorable climate. Likewise different the influential type of diseases are making the poultry business vulnerable.
- Insurance could be one of the factors to mitigate such type of risk, however, the insurance companies are yet to be expanded their businesses to the agriculture sector.
- No regular cash flow of farmers to repay the monthly installment.
- No mechanization and modernization in agriculture sector so that the loan could be provided against the backup of the machines and the project itself.
- BFIs's network is concentrated in urban areas, the presence of BIFs with wide range of affordable services in the rural areas are not satisfactory.

Demand Side Constraints

- Lengthy administrative procedure of BFIs, long and complex application form which is beyond the understanding of most of the farmers.
- Poor banking habit, wrong perception about availing the bank credit. Still many people perceive that taking loan from bank diminishes the prestige in the society.
- Lack of financial literacy, less awareness about the services, products, procedure, cost and among others.

Efforts from Government of Nepal

One of the major policy instruments for mobilizing financial resources to enhance agricultural productivity is the use of government subsidy in all over the world. The Nepalese government has granted selective subsidies on farm inputs, farm equipment and facilities and farm service to reduce the cost of agricultural production mostly before the economic liberalization in 1980s. The subsidy policy embarked upon by the Nepalese government cuts across the various sub –sectors of the agricultural sector. In the crop sub – sector, input covered by subsidy are seeds, seedling, water supply, fertilizer, pesticides, herbicides, processing and storage equipment and irrigation facilities such as dams, and boreholes, construction pumps, sprayers and other farm machinery and equipment.

In addition to the role of the governments, the local government authorities are expected to take over progressively the responsibilities of the state with respect to provision of rural infrastructure and promotion of rural infrastructure and promotion of farmers organizations, mobilization of farmers for accelerated agricultural and rural development through cooperative societies, provision of land for new entrants into farming in accordance with the provision of the land reform policies of different times. The role of the private sector in resource mobilization towards agricultural financing is to take the advantage of the improved enabling environment provided by the public sector for profitable investment in agriculture. In particular, the private sector is expected to participate in the maintenance of small and medium scale agriculture projects for the purpose of maximizing agriculture productivity. Government has prioritized agriculture sector since the first development plan. Subsequently following policies were implemented to increase the productivity and flow of financial resources in agriculture sector in Nepal over the years by the government of Nepal.

- Agriculture sector has been kept in priority in Plans and Programs but never prioritized the actions and budget since the inception of planning in 1956 A.D.
- Government of Nepal has imposed 20 years Agriculture Strategy (1994/95 to 2014/15) which emphasized the modernization and commercialization of agriculture.
- 13th development plan has envisioned to achieve growth of 4.5 in agriculture sector during the plan period.

- Agriculture Development Strategy (ADS) 2014 has been made public recently with the vision of "Self reliant, sustainable, competitive and inclusive agricultural sector that drives economic growth and contributes to improved livelihood and food and nutrition securities" and the growth target has been set at 6percent in the coming 10 years.
- Various programs have been announced in budget for modernization, commercialization and competitive agriculture sector.

Way Forward and Role of Central Bank for Agricultural Credit

NRB is playing an active role of improving the quantitative and qualitative targets of agriculture credit. Although, the bank did not have specific and clear mandate for the development of agriculture sector that allow the bank to play some major role in agricultural financing to advance credit to agriculture and support for economic growth and development of nation. In the past the bank had established a separate Division for agricultural credit for research, assessment of credit needs and supervision of rural credit operations but now it has been restructured with the Micro Finance Promotion and Supervision Department. In future, NRB can establish a separate Desk/Division for the regulation and supervision of agriculture credit as well as for other productive sector credit programs. Bank Financing in the form of capital investment can generate increased productivity in agriculture sector by fulfilling the financing need of the farmers to get the agriculture inputs such as fertilizers, machines, irrigation, quality seeds, consultation service, and improved technologies and among others.

The greater and wider level of financial access and inclusion can support to meet the demand of agriculture credit from the supply side improvement. As per the agriculture census 2011, only 22.0 percent farmers use bank loan and 42.0 percent farmers have bank financing need. Likewise, as per the latest survey of *Fin Scope of World Bank*, only 40.0 populations have access of financial service in Nepal.

As the agriculture credit is small in size comparatively to other loans, bank may feel demotivated with respect to high administrative and low profit. However, there is less possibility of default. Various numbers of loan accounts ultimately create good earning in the long term. Not only in the form of profitability point of view, is agriculture credit considered good from the financial stability point of view too. The focus of NRB should be in the areas on which, generally banks have the internal policy of payback the interest and principal in monthly basis. Agriculture sector can not generate earning in monthly basis. So repayment cycle should be developed as per their harvesting time and good quality infrastructure reduces cost of production, distribution and also eases to get the agriculture inputs on time.

Moreover, NRB needs to promote BFIs lending on agriculture sector infrastructure to improve the quality of rural and agricultural road network, support for small and medium size electricity generating projects for supplying power to the agriculture. Financing for mechanization of agriculture might also be another avenue to increase agriculture productivity and credit to agriculture. As per the latest survey on *Agriculture Mechanization 2012 (CBS)*, only one percent farmers have tractor or power thriller, and

thressor, 52.0 percent farmers have traditional equipment like wooden plough. Banks should finance for the machinery and equipments in the back of the machinery itself. Financing in irrigation project can directly benefit the farmers. Irrigated land out of total arable land in only 54.4 percent as per NLSS III. NRB should also focus to make financial literacy program more effective and simplified the loan taking procedure from BFIs, especially for the purpose of agriculture credit.

- Likewise, joint efforts and national campaign program about agriculture credit and proactive and dynamic revision in related policies and regulations relating to agriculture credit is the requirement of this time to increase the agriculture credit in Nepal.
- The uncertainly elements in agriculture be minimized. The farmers must be hardworking so that they could utilize the farms efficiently. As a result, the agriculture production increases and agriculture sector will become profitable in this way; the flow of agriculture credit will go up. Financial literacy needs to reach up to farmers for this reason.
- The provision of agriculture loans to be aligned with productive capacity and efficiency of land, rather securities. Industrial and commercial loan to be embedded with agriculture sector commercialization in this sense.
- The farmers to be provided with complete package of agriculture inputs instead of just loans as the case of supervised credit. Therefore, this scheme should be effectively implemented. Targeted credit programs are needed for different agriculture inputs for this reason.
- The better advisory services are provided regarding agriculture marketing. In this way, the farmers could be able to get fair prices of their produce and easily repay loans. Agriculture advisory services and technical areas of agriculture needed to get access for agriculture credit to support farmers.
- A revolution in agriculture sector is brought about so that people could pay more attention on developmental works, rather social traditions. A better institutional set up is required for policies, programs and assessment of credit availability.
- Commercial banks even the cooperatives are not prepared to give loans to farmers. Thus because of poor financial status, more affects of natural uncertainty in agriculture, the commercial banks and other financial institutions are not prepared to lend to farmers. They think that the cost of advancing loans to farmers is more than their revenues. The relation which existed between banks and industry and commerce is missing in case of banks and farmers. The farmer who is poor and illiterate cannot frequently visit the banks as the businessmen do. Thus, these constraints and problems needs to be addressed by the NRB through appropriate policy.

- Lack of securities is another problem repeatedly raised by BFIs in agricultural credit. Securities and collateral for the agricultural loan need to be revisited and require making a separate guidelines or directives for agriculture credit.
- Non-institutional credit is a major problem. As so many farmers in Nepal do not have any way out except to go for non-institutional credit. But the friends and relatives are limited source; they fail to supply enough funds. They could not provide loans for consumption and limited production purposes. They hardly provide developmental loans. Then, the farmers move to landlords and commission agents to get the loans. The landlords provide loans to marginal extent and exploit the farmers. Hence, access and delivery of financial service in the required area needs to be set up to solve this problem.
- Improper use of agriculture credits has not been controlled as so many experts are of view that agriculture credit will be least beneficial if they fail to increase the agriculture output, increase the cultivable area and improve the lot of farmers. Monitoring and supervision of such credit should be strengthened.
- Complicated procedure and strict conditions of BFIs is major hurdle to take loans in Nepal. The farmers have to face very strict conditions and complicated procedures while getting the loans. Again, the official formalities and, the behaviors of bank obstruct the small farmers to get loans. Similarly, the weak financial position and higher interest rate also hamper loaning farmers. Process and procedure on credit policy for agriculture and interest rate rules in agriculture require to be more simplified and better regulated to solve this problem.
- For BFIs point of view recovery of agriculture credit might deteriorate their assets quality and reduce the profitability. The process of recovery of loans is very much low. Due to financial position the small farmers fail to pay back the loans. The process of loan recovery limited, as the farmers hardly care for repayment of loans. Refinance facilities in agriculture credit needs to be strengthened.

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CONDUCTIVITY BEHAVIOR OF NICKEL SULPHATE IN ETHANOL-WATER MIXED SOLVENT MEDIA AT VARIOUS TEMPERATURES

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Abstract

The conductivity measurement of NiSO_4 has been done in ethanol-water mixed solvent media at various temperatures in the solvent compositions 10%, 20%, 30% and 40% (v/v) ethanol in water as mixed solvent media. The concentration of the NiSO_4 solutions prepared varies from $0.008 - 0.1 \text{ MolL}^{-1}$ for temperatures 298.15 K, 303.15 K and 308.15 K. The conductivity of the electrolyte decreases with increase in ethanol content in the solvent at particular temperature and at the same time conductivity increases with temperature for a given solvent composition.

Keywords: mixed solvent, dielectric constant, ionic mobility

Introduction

Electrolytes are the compounds that are unable to conduct electric current in aqueous solution, non-aqueous solution, mixed solution or in molten state. In electrolytic solutions or conductor, free ions are responsible conduction of electric current. The electrical conductivity provides useful information in the area of engineering and in corrossions area provides useful information for assessing the corrossively of aqueous media and for the design of cathodic protection system. Also it is used to gain insight in to the properties of electrolyte solutions and evaluate characteristics quantities such as dissociation constants (Andreko & et al,1997). The conductance measurements provide valuable information regarding the ion-ion, ion-solvent interaction and solvent structure for both aqueous and binary solvent systems. The conductance in different electrolytes in aqueous solution have been extensively reported in literature, but in mixed solvent media including ethanol-water binary solvent is rare (Janz & et al, 1972) also the conductivity measurement of transition metal salts are very rarely found in literature, and will be a new trend for research in electrochemistry. So we have been selected NiSO_4 for our study. In recent, several studies have reported that the nature of the spherical ions, having a large variation in size in aqueous mixtures of the alcohols, has received considerable attention (Lee & et al, 1988). It was reported in the previous work that potassium halides are structure breakers in ethanol-water mixtures and the maximum in breaking power occurs at 0.1 mole fraction of ethanol (Lee & et al, 1975). The conductance of Sodium nitrate in ethanol - water mixtures was measured at 308.15 K in 1979 (Chazhoor & et al, 1979). The measurement of conductance of potassium nitrate (Basnet & et al, 2013) and also Nickel Chloride (Basnet & et al, 2014) in pure water and ethanol-water mixed solvent media has been done. This paper deals with the conductance behavior of Nickel Sulphate in ethanol-water mixed solvents covering a range of dielectric constant values at temperature 298.15, 303.15 and 303.15 K.

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Experimental method

The Ethanol is purchased from Merck, India, company, which was then distilled with phosphorous pentoxide and again redistilled over calcium hydride. The purified ethanol had a density of 0.78097gcm^{-3} at 303.15 K. The density of ethanol was measured by the use of an Ostwald-Sprengel type pycnometer of about 25 cm^3 capacity. The pycnometer was then tightly fixed in a thermostat at the experimental temperatures within 0.005 K for at least 15 minute to have thermal equilibrium with thermostat. After thermal equilibrium was attained, the mass of the pycnometer was measured with an electronic balance having 0.0001 gm sensitivity, made by KERN company, Germany and the density was calculated. The water used in preparation of binary solvent was obtained by triply distillation of ordinary water using potassium permanganate and sodium hydroxide. The purified water has a specific conductance less about $(1.0\text{-}2.0)10^{-6}\text{ S.cm}^{-1}$ at 303.15 K. The dielectric constant of the mixed solvents at the experimental temperatures were obtained by regressing the relative permittivity data as function of solvent composition from the literature (Lee & et al, 1988).

The $\text{NiSO}_4 \cdot 7\text{H}_2\text{O}$ employed in these investigations was purchased from SD Fine Chem Limited, Mumbai, India. Conductance measurements were carried out on a Pye-Unicam PW 9509 conductivity meter at a frequency of 2000 Hz using a dip-type cell with a cell constant of 1.15 cm^{-1} and having an uncertainty of 0.01%. The cell was calibrated by the method of Lind and co-workers, 1959 using aqueous potassium chloride solution. The measurements were made in a water bath maintained within $\pm 0.005\text{ K}$ of the desired temperature. The details of the experimental procedure have been described earlier (Das & et al, 1992). The concentration of the solution of the electrolyte ranges from 0.008 MolL^{-1} to 0.1 MolL^{-1} . The solutions of the electrolyte were prepared up to 40% (v/v) ethanol because the electrolyte was getting difficulty to solubilize in above 40% (v/v) ethanol.

To ensure the reproducibility of the results, several independent solutions were prepared and runs were performed. In order to avoid moisture pickup, all solutions were prepared in a dehumidified room with utmost care. In all cases, the experiments were performed three times.

Result and discussion

The structure of water is different than that of ethanol and the structure of alcohol is simpler than that of water. The water and alcohol molecules associate much less strongly, and form polymeric H-bonded chains, rather than large cluster, which rarely contain 5 to 7 molecules for sterically hindered alcohols (Das & et al, 1995). The hydrogen bonding network strengthening and tetrahedral like water network changes to zig-zag chain structure of the system with increase in alcohol concentration in the ethanol-water system (Pradhan & et al, 2008). The hydrogen bonding and closer packing of the molecules by the attraction allows a larger number of molecules of the hydrated ethanol to fit into the same space, thus decreasing the overall volume. The density of the binary solvent decreased with the increase of ethanol content for the ethanol-water mixed solvent system (Franks & et al, 1966). In ethanol-water mixtures, solvent-solvent interactions play a considerable part and properties of these mixtures cannot always be interpreted on the basis of continuous miscibility of the

components in all mixtures. These mixtures possess also pronounced structures which vary with temperature and ethanol content.

The relative permittivity of the medium (fig. 1) decreased at a given temperature with increasing in the ethanol content in the mixed solvent media. The addition of ethanol in water, breaks the structure of water so that the dielectric constant of water in presence of ethanol decreases after the addition of ethanol.

The specific conductance of Nickel Sulphate as a function of the salt concentration at 298.15 K, 303.15 K and 308.15 K temperatures in different ethanol-water mixed media containing 10, 20, 30 and 40% (v/v) ethanol are depicted in figures 2-4. These figures show that the specific conductance linearly increases with increasing concentration within the concentration range investigated here. The increase in the conductivity with concentration is due to an increase in the ionic density in the solution or simply by the increase in no. of ion pairs.

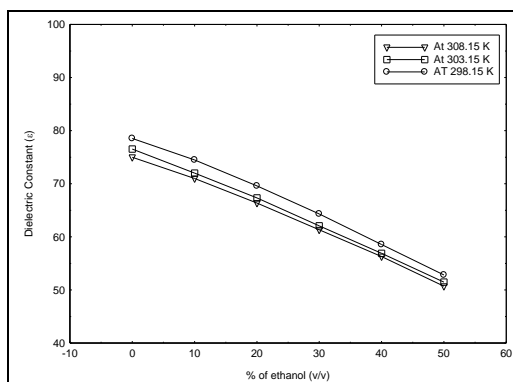


Figure 1: Dielectric constant as a function of the volume fractions of Ethanol

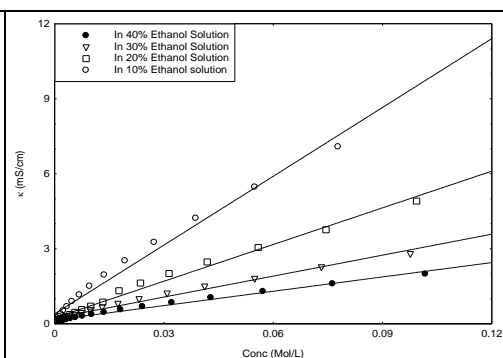


Figure 2: Sp. conductance of NiCl_2 as a function of concentration at 298.15 K (Solid lines– fitted graphs)

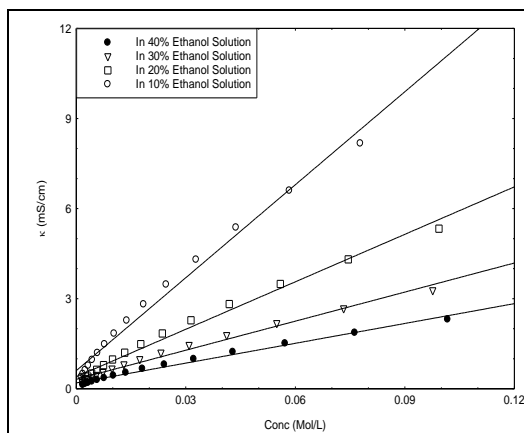


Figure 3: Sp. conductance of NiSO_4 as a function of concentration at 303.15 K (Solid lines– fitted graphs)

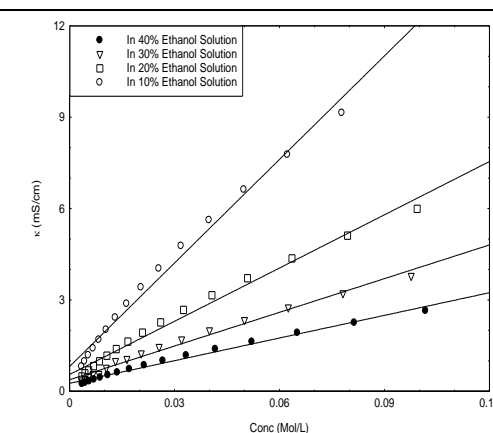


Figure 4: Sp. conductance of NiSO_4 as a function of concentration at 308.15 K (Solid line– fitted graphs)

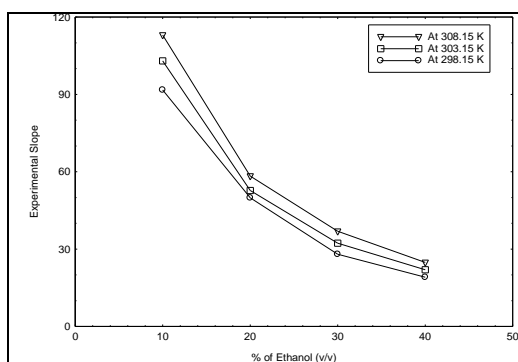


Figure 5: Experimental slopes as a function of % of Ethanol at 298.15 K, 303.15 K and 308.15 K

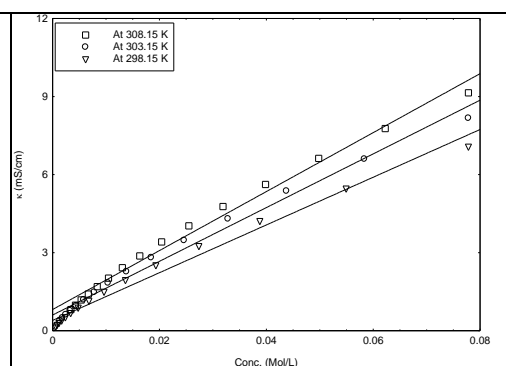


Figure 6: Sp. conductance of NiSO_4 as a function of concentration in 10% (v/v) Ethanol (Solid lines– fitted graphs)

The conductivity is also the function of temperature, so it is well known fact that specific conductance of an electrolyte increases with increase in temperature. In this study, also the specific conductance of NiSO_4 increases with increasing temperatures in ethanol - water mixed solvent media (fig. 6), similar trend was also reported in the same solvent system for electrolytes KNO_3 (Basnet & et al, 2013) and NiCl_2 ((Basnet & et al, 2014) and also in methanol-water system for electrolytes NaBr and NaI (Zhang & et al, 1997). The increase in specific conductance with temperature is mainly due to the increase in thermal energy of the ions, decrease in the viscosity of the solvent, and also an increase in the degree of ionization of electrolyte; which are responsible for mobility of ions.

Table 1: Experimental slopes, correlation coefficients of fits (as r^2) of Nickel sulphate and dielectric constant of Ethanol-Water mixtures at different temperatures

% of Ethanol (v/v)	298.15 K			303.15 K			308.15 K		
	Slope	r^2	$\epsilon_{\text{solvent}}$ [11]	Slope	r^2	$\epsilon_{\text{solvent}}$ [11]	Slope	r^2	$\epsilon_{\text{solvent}}$ [11]
10	91.7	0.985	74.49	103	0.988	72.00	113	0.989	71.00
20	49.9	0.990	69.58	52.7	0.988	67.32	58.3	0.988	66.37
30	28.0	0.987	64.31	32.3	0.986	62.07	36.9	0.987	61.33
40	19.1	0.989	58.56	22.0	0.989	56.89	24.8	0.990	56.29
50	-	-	52.81	-	-	51.48	-	-	50.70

There are the linear relationship between specific conductance and the electrolyte concentrations for all temperatures and solvent composition investigated. But, it has been studied that the conductivity value decreases with increase of ethanol content in the system (shown in figures 2, 3 and 4). The specific conductance of the different electrolytes also showed same pattern as reported earlier in literature (Zhang & et al, 1996) i.e. the conductivity decreases with increase of ethanol content for the studied ethanol-water mixed solvent system. The presence of ethanol reduces the dielectric constant of the binary solvent phase (shown in table 4 and figure 1) by breaking the structure of water, disturbed the original orientations of water molecules. The decrease in dielectric constant of binary

solvent makes easier for the formation of ion-pairs in the solution phase so that decrease in the degree of ionization of the electrolyte also. The decrease in specific conductance can also be explained in terms of having small ionizing effect of the solvent on electrolytes, so the electrostatic forces between oppositely charged ions would be appreciable and will have the small value of the specific conductance.

Conclusions

The conductivity behavior of the NiSO_4 has been studied by obtaining data of the variation of specific conductance of Nickel Sulphate with the concentration, temperature, and solvent composition in ethanol- water mixed solvent media. On the basis of result and discussion of the experimental study, it is found that the specific conductance increases with increasing concentration and temperature of the electrolytic solutions over the entire concentration range investigated whereas the specific conductance of the same electrolyte in the mixed solvent media decreases with decreasing dielectric constant of solvent composition.

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पृथ्वीराज चौहान: छोटो समीक्षा

भूमिप्रसाद दाहाल*

महाकवि लक्ष्मीप्रसाद देवकोटाद्वारा लिखित 'पृथ्वीराज चौहान' महाकाव्य २००३ सालतिरै लेखिएको र २०४९ सालमा साभा प्रकाशनबाट प्रथम पटक प्रकाशित महाकाव्य हो । यो २१ सर्ग र १८४ पृष्ठमा लेखिएको छ । (देवकोटा: २०६३), यो महाकाव्य भारतीय इतिहास र हिन्दु संस्कृतिका अनुयायी पृथ्वीराज चौहानको जीवनीमा आधारित छ । छन्द र लयका दृष्टिले हेर्दा लोकलयमा आधारित यो महाकाव्यमा लामा-छोटा कविता गुच्छाहरू रहेका छन् । भारतीय इतिहासमा वीरताको भावनाले ओतप्रोत भएको विषय वस्तुमा आधारित यो महाकाव्य देवकोटाकै शाकुन्तल र प्रमिथस जस्ता महाकाव्यहरूको तुलनामा त्यति सशक्त र बढी महत्वपूर्ण नदेखिए पनि उक्त महाकाव्यसँग तुलना नगरी यसलाई मात्र हेर्ने हो भने चाहिँ यो महाकाव्य पनि कम महत्वको छैन । यसमा पनि महाकाव्यका अभिलक्षणहरू प्रशस्त मात्रामा घटित छन् ।

प्रस्तुत महाकाव्यको कथावस्तु १२ औं शताब्दीको भारतीय इतिहास अन्तर्गत दिल्ली र अजमेरका राजा पृथ्वीराज चौहानको जीवनीमा आधारित छ । यस महाकाव्यको प्रथम सर्गका कथा वस्तु पढ्ने आग्रह गरिएको छ । यसै सर्गमा विषयवस्तु र त्यसले संकेत गरेको, भन्न खोजको मुख्य कुरा ध्वनीमा अभिव्यञ्जना गर्ने प्रयास गरिएको छ । यस पृथ्वीमा वीरहरूको अवतरण देशको रक्षा र मानव सेवका लागि हुन्छ । प्रेम नै मानिस बाँच्ने जीवन आधार हो भने कुरा देखाएको छ । यस क्रममा महाकविले मानवतावाद, माननीय प्रेम, आफ्नो अतीतप्रतिको मोह प्रकट गर्न स्वच्छन्दतावादी प्रवृत्ति अँगालेको देखिन्छ । दोस्रो सर्गमा तत्कालीन भारतका स-साना राज्यका हिन्दू शासकहरूमा परस्परमा हुने पदलोलुपता, स्वार्थीपन, विलासिता, आपसी वैमनश्यता आदिको चित्रण गर्दै यस्तो परिस्थितिमा पनि पृथ्वीराज चौहान जस्ता देशभक्त, मानवतावादी, जनतालाई एकताको सूत्रमा बाँध्न सक्ने व्यक्तित्वको उदयले धर्ती धन्य छ भन्ने कुरा देखाइएको पाइन्छ ।

तेस्रो सर्गमा तत्कालीन हिन्दूधर्मावलम्बीहरूको असल राजाप्रति देवत्वको सद्भाव वस्तुमा पृथ्वीराजमानै घटित हुने कुरा देखाउँदै उनी बाहेकका अरु राजा रजौटाहरू आफ्नो मपाइँत्व प्रदर्शन गर्दै अहङ्कार अभिमान र दम्भमा बाँचिरहेको कुरा देखाई यस्तै राजाहरूको प्रतिनिधि पात्रका रूपमा पृथ्वीराजका विरोधी कन्नौजका राजा उदयचन्द्रलाई प्रस्तुत गरिएको

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यस क्रममा कन्नौजका राजा जयचन्द्रकी छोरी संयोगिताले आफ्नी धाई आमाबाट पृथ्वीराजको रूप-रङ्ग र वीरताको वर्णन सुनेपछि भित्र-भित्रै पृथ्वीलाई मन पराईरहेकी हुन्छिन् । तर बाबु जयचन्द्र पृथ्वीराजप्रति ज्यादै वैरभाव राख्ने हुँदा संयोगिता भित्र-भित्रै दुःखी हुन्छिन् । यो कुरा पृथ्वीले बुझेर आफ्ना भित्र चन्दालाई लिएर भेष बदली कन्नौज पुग्छन् । गायकको भेषमा कन्नौज दरवारको अन्तपुरमा पुगेका पृथ्वी र चन्दालाई कडा जाँच पछि प्रवेश दिइन्छ । संयोगिताले पनि पृथ्वीराजलाई चिन्छिन् । केही समयपछि प्रेमालाप भए पश्चात् चीनो साटासाट गरेर उनीहरू दिल्ली फर्कन्छन् । यस बीच भएका युद्धहरूमा पृथ्वीराजले विजय हासिल गर्छन् ।

उता जयचन्द्र भने पृथ्वीको उदयमा अफ जल्छन् । को भन्दा के कमको भावनामा उनी कन्नौजमा राजासूथ यज्ञ र छोरी संयोगिताको स्वयम्बर गर्ने विचार गर्छन् । यस निम्तामा पृथ्वीले चन्दालाई पठाउँछन् । आफू भेष बदलेर त्यहाँ बस्छन् । यज्ञमा पृथ्वीराज आएको नदेखि आफूलाई अपमान गरेको ठानेर जयचन्द्रले पृथ्वीको पित्तलको मूर्ति राखी त्यसमा सिस्नाको माला लगाइ दिएका हुन्छन् । स्वयम्बरको माला लिएर स्वयम्बर हलमा प्रवेश गरेकी संयोगिताले पृथ्वीको त्यही पित्तलको मूर्तिमा स्वयम्बरको माला पहिराएपछि पृथ्वीराज त्यही बाहिर प्रकट भई संयोगितालाई घोडामा राखेर दौडाउँछन् । पिछ्छा गर्ने कसैले भेट्न सक्तैनन् । संयोगितासँग दिल्लीमा धुमधाम विवाह हुन्छ । संयोगिताको प्रेममा भुलेर मस्तभएका पृथ्वीराजमाथि पहिले परास्त भई मौका पर्खिरहेका मुहम्मद गोरी लगायतका मुसलमान फौजले आक्रमण गर्छन् । घमसान युद्ध हुन्छ । हिन्दूराजाहरू भोग-विलासितामै व्यस्त थिए । स्वयं ससुरा जयचन्द्र रमिते बने । मुसलमान फौजका अर्का एक्ला पृथ्वीराजको केही लागेन । आखिर उनी मुहम्मद गोरीको वन्धनमा परे । पाउ समाते इस्लाम धर्म ग्रहण गरी माफी मागे नोकरसम्म बनाएर राख्ने गोरीको घोषणालाई पृथ्वीले ठाडै अस्वीकार गरेको हुँदा उनको 'शिरच्छेदन' गरियो । संयोगिता सवी गइन् (जोशी, २०५१, ३३२) ।

यस प्रकार पृथ्वीराज चौहान महाकाव्यका मुख्य पात्र नायक पृथ्वीराजको मृत्युले प्रस्तुत महाकाव्य दुःखान्तक बन्न पुगेको छ । कथावस्तु दुःखान्तक भए पनि यस महाकाव्यले निराशा भने प्रस्तुत गरेको छैन । बरु मुहम्मद गोरीको विशाल फौजका सामू एकलै परेका

पृथ्वीको स्वधर्मप्रतिको निष्ठा, त्याग, तपस्या, स्वभिमान र बलिदानीपूर्ण भावनाले पाठकवर्गहरूलाई वीर भावमा परिणत गराउँछ भने उनको मृत्युले त्रास र करुण पनि उत्पन्न हुने देखिन्छ । यस महाकाव्यका कविले विभिन्न घटनाको माध्यमबाट एकताको महिमा र हिन्दुत्वको वैशिष्ट्य प्रतिपादन गरिरहेको र यसबाट कविको भोगविलास, भौतिक मूल्यका विरुद्ध राष्ट्रवादी-मानवतावादी तथा पूर्वीय आध्यात्मिक सांस्कृतिक मूल्यप्रतिको आकर्षण छर्लङ्गिको देखिन्छ (जोशी: २०४८:२०४) ।

यसरी हेर्दा प्रस्तुत महाकाव्यको कथावस्तु इतिहास प्रसिद्ध छ, मुख्य पात्र राजकुल घरानाका छन् । रानी पनि राजकुमारीबाटै रानी बनेकी छिन् । मुख्य पात्रमा वीरोचित गुणहरू प्रशस्त मात्रामा छन् । सन्ध्या, गीत, यज्ञ, स्वयम्बर जस्ता प्रसङ्गहरू समावेश छन् । मुख्य पात्र धीर र उदात्त गुणले भरिएका छन् । कथा वस्तु सर्गवद्धमा छ । यी लक्षणहरूलाई हेर्दा यस महाकाव्यले पूर्वीय महाकाव्यका लक्षणहरू बोकेको देखिन्छ भने ; नायकको दुखातीयता, नायिकाको सतीगमन शत्रुहरूको विजय आदि प्रसङ्गले पाश्चात्य दुखातीय नाटक र महाकाव्यको प्रभाव पनि यसमा थोर-बहुत परेको देखिन्छ । देशभक्तहरू कहिल्यै मर्दैनन्, त्यसैले उनीहरू सहिद हुन्छन् भनेर पनि सधैं अजर अमर रहन्छन् भन्ने सिद्धान्तलाई यहाँ पनि राखेर हेर्ने हो भने भौतिक शरीरबाट मरेर गए पनि मरणशील शरीरबाट पृथ्वीराज इतिहासमा सदा अजर अमर बनेका छन् । त्यसैले यस महाकाव्यमा देवकोटाको पूर्वाद्ध र उत्तराद्ध कविता यात्राको दोसाँधतिरको रुमानी अतीतमुखी तर युग व्यञ्जक देशभक्ति र स्वतन्त्र चेतनाकासाथै आत्मबलिदानी सांस्कृतिक, राजनैतिक पुनर्जागरणचेत तीव्र रूपमा सुसाएको छ (त्रिपाठी: २०४९ सम्बन्धित महाकाव्यको भूमिका-च) ।

प्रस्तुत महाकाव्यको कलात्मक वैशिष्ट्य पक्ष हेर्दा उनकै अरु महाकाव्यको तुलनामा यसलाई कमजोर महाकाव्यकै रूपमा लिन सकिन्छ । महाकाव्यका लक्षणले भरिएको कथावस्तु, पात्र, वातावरण, द्वन्द, समायोज, भाषाशैली र उद्देश्य पनि तदनुरूप हुँदा हुँदै पनि कथावस्तुको क्रमिक विकास, कवित्व र आख्यानको समीकरण, कथावस्तुको क्रमिक अवतरण आदिमा यो महाकाव्य अलिक कमजोर नै देखिन्छ भने महाकाव्यको अभिलक्षणका दृष्टिले हेर्दा यसले पाश्चात्य वियोगान्तक नाटक र महाकाव्यबाट केही प्रभाव ग्रहण गरे पनि यसले निकटतम सम्बन्ध चाहिँ संस्कृत महाकाव्य सिद्धान्तसँगै राखेको देखिन्छ ।

सन्दर्भ:

१. जोशी कुमारबहादुर (२०४८), 'देवकोटा प्रमुख कविता कृतिको काल क्रमिक विवेचना' काठमाण्डौ: सिद्धार्थ वनस्थली प्राज्ञिक परिषद् ।
२. जोशी कुमारबहादुर (२०५२), महाकवि देवकोटा र उनका महाकाव्य (तेस्रो सं.), ललितपुर: साभा प्रकाशन ।
३. देवकोटा लक्ष्मीप्रसाद (२०६३) 'पृथ्वीराज चौहान' (दोस्रो सं.) ललितपुर: साभा प्रकाशन ।

धितोपत्र बजार र नेप्से परिसूचक

तेजप्रसाद आचार्य*

धितोपत्र खरिदकर्ता तथा विक्रेतालाई एकै ठाउँमा ल्याई धितोपत्रको विनिमय गर्ने प्रणाली नै धितोपत्र बजार हो । प्राथमिक बजारमा शेयर कसरी निष्कासन गरिन्छ, दोस्रो बजारमा कसरी शेयर खरिद विक्री हुन्छ नेप्से परिसूचकको अर्थ एवं निकाल्ने विधि, वोनस शेयर तथा हकप्रद शेयरको निष्कासनले शेयर मूल्यलाई कसरी प्रभावित पार्दछ भन्ने विषय वस्तु वारे संक्षिप्त रूपमा जानकारी दिने प्रयास गरिएको छ ।

वित्तीय बजार

वित्तीय बजारको अर्थ

कुनै पनि संगठनको संचालन शून्य (Vacuum) वातावरणमा नभएर विभिन्न प्रकारका आर्थिक, कानूनी, राजनैतिक, सामाजिक, प्राविधिक, वातावरणभित्र रहेर भएको हुन्छ । व्यवसायिक संगठनको संचालनमा पूँजी, व्यवस्थापन शैली, प्रतिस्पर्धाको स्तर, प्रविधि, जनशक्ति, कानूनी प्रावधानहरू आदि पक्षको प्रत्यक्ष संलग्नता रहन्छ । व्यवसायिक संगठनका संचालनका लागि आवश्यक पर्ने पूँजी कुन कुन स्रोतबाट के कति मात्रामा प्राप्त गर्ने, नाफामूलक लगानीका क्षेत्र पहिचान गर्ने, प्राप्त पूँजीको कहाँ र कति लगानी गर्ने, संस्थाले अर्जित मुनाफाको वितरण कसरी गर्ने जस्ता अहं प्रश्न वित्तीय व्यवस्थापकका सामु सधैं खडा भइरहन्छन् । यस मध्ये संस्थालाई आवश्यक पर्ने अल्पकालीन तथा दीर्घकालीन पूँजीको प्राप्ति तथा परिचालन सँग वित्तीय बजार सम्बन्धित छ । वित्तीय बजारले बचतकर्ताबाट प्रयोगकर्ताहरूमा कोषको हस्तान्तरण गर्ने कार्यमा सहयोग पुऱ्याउँदछ । वित्तीय बजारको माध्यमबाट शेयर ऋणपत्र, प्रतिज्ञापत्र जस्ता विभिन्न प्रतिभूतिहरूको खरिद-विक्री गरी कोष प्रवाह गराई अर्थतन्त्रमा तरलता प्रदान गर्ने संयन्त्रको विकास गरिन्छ ।

वित्तीय बजार त्यो हो, जहाँ साधारण शेयर, अग्रधिकार शेयर र ऋणपत्र, ट्रेजरी बिल, प्रतिज्ञापत्र जस्ता वित्तीय सम्पत्तिको खरिद-विक्री गरिन्छ । प्रतिभूतिहरूको मूल्य निर्धारण, व्याजदर निर्धारण गरिन्छ र वित्तीय कारोवार तथा कारोवार गर्ने संस्थालाई व्यवस्थित गर्न आवश्यक नियमहरूको कार्यान्वयन गरिन्छ । यसरी कोष (रकम) को बचत भएका व्यक्ति वा संस्थाबाट कोषको अभाव भएका पक्षहरूलाई कोष प्रवाह गर्ने कार्यमा संलग्न सम्पूर्ण पक्षलाई वित्तीय बजार भनिन्छ ।

वित्तीय बजारका प्रकार

वित्तीय बजारका विभिन्न स्वरूपहरू छन् । खरिद-विक्री हुने प्रतिभूतिहरूको परिपक्व अवधिको आधारमा वित्तीय बजारलाई मुद्रा बजार र पूँजी बजारमा वर्गीकरण गर्न सकिन्छ भने

प्रतिभूतिको निष्काशनका आधारमा प्राथमिक बजार र दोस्रो (धितोपत्र) बजारमा विभाजन गर्न सकिन्छ ।

प्रतिभूतिको परिपक्व अवधिका आधारमा

मुद्रा बजार (Money Market)

एक वर्षभन्दा कम समय अवधिको लागि निष्कासन गरिने प्रतिभूतिहरूको खरिद-विक्रीमा संलग्न बजारलाई मुद्रा बजार भनिन्छ । यहाँ बजार भन्नाले कुनै स्थान विशेषलाई नजनाई खरिद-विक्री कार्यमा संलग्न पक्ष र खरिद विक्री कार्यलाई बुझाउँदछ । मुद्रा बजारमा सरकार वा सरकारको तर्फबाट केन्द्रीय बैंकले निष्काशन गर्ने ट्रेजरी बिल, व्यवसायिक संगठनलाई वाणिज्य बैंकहरूले प्रदान गर्ने Banker's Acceptance अल्पकालीन अवधिको लागि व्यवसायिक संगठनले जारी गर्ने Commercial Paper, विश्वासिलो व्यवसायिक संगठनलाई बैंकहरूले प्रदान गर्ने Certificate of Deposit (CD), पारस्परिक कोषले जारी गर्ने Money Market Mutual fund's Certificate आदि प्रतिभूतिहरूको निष्काशन तथा खरिद-विक्री गरिन्छ । नेपालमा मुद्रा बजारको नियमन तथा अनुगमन नेपाल राष्ट्र बैंकले गर्दछ ।

पूँजी बजार (Capital Market)

दीर्घकालीन अवधिका लागि पूँजी प्राप्त गर्न एक वर्षभन्दा बढी परिपक्व अवधि भएका प्रतिभूतिहरू खरिद-विक्री कार्यमा संलग्न बजारलाई पूँजीबजार भनिन्छ । यस बजारमा विशेषतः पब्लिक लिमिटेड कम्पनीले जारी गर्ने शेयर तथा ऋणपत्र सरकारको तर्फबाट केन्द्रीय बैंकले निष्कासन गर्ने National Saving Certificate, Citizen Saving Certificate, Foreign Employment Saving Certificate, Development bond, Treasury bond आदिको खरिद विक्री गरिन्छ । नेपालमा पूँजी बजारको नियमन तथा अनुगमन नेपाल धितोपत्र बोर्डले गर्दछ ।

प्रतिभूतिको निष्कासनका आधारमा :

प्राथमिक बजार (Primary Market)

कम्पनी तथा सरकारले निष्कासन गरेका प्रतिभूतिको पहिलो पटक खरिद-विक्री हुने कार्यमा संलग्न बजारलाई प्राथमिक बजार भनिन्छ । प्राथमिक बजारबाट पूँजी मुख्यतः दुई किसिमले प्राप्त गरिन्छ । सर्वसाधारण व्यक्ति वा संस्थाले खरिद गर्न पाउने गरी प्रतिभूतिको विक्री गर्ने कार्यलाई सार्वजनिक निष्कासन (Initial Public Offering -IPO) भनिन्छ भने पुराना शेयर सदस्यले मात्र पहिले खरिद गरेका शेयरको अनुपातमा केही सहूलियत मूल्यमा नयाँ शेयरहरू खरिद गर्न पाउने गरी निष्कासन गरिएका शेयरहरूलाई हकप्रद शेयर निष्कासन (Right offering) भनिन्छ ।

दोस्रो वा धितोपत्र बजार (Secondary or Stock Market)

एक पटक निष्कासन भैसकेका प्रतिभूतिहरूको पुनः खरिद-विक्री हुने बजारलाई दोस्रो बजार भनिन्छ । प्राथमिक बजारमा एक पटक निष्काशन गरिएका प्रतिभूतिहरू खरिद गर्ने

लगानीकर्ताहरूले प्रतिभूति विक्री गर्न चाहेमा वा पुनः किनवेच गर्न चाहेमा उपलब्ध हुने बजार नै दोस्रो वा धितोपत्र बजार हो । यस्तै बजारलाई संगठित धितोपत्र बजार र ओभर दि काउण्टर बजार गरी दुई भागमा विभाजन गर्न सकिन्छ ।

नेपालमा संगठित रूपमा धितोपत्रको दोस्रो बजारको काम गर्ने संगठनलाई नेपाल स्टक एक्सचेन्ज (Nepal Stock Exchange-NEPSE) भनिन्छ । यहाँ खरिद विक्री गर्न सूचिकृत धितोपत्रहरूको स्वचालित कारोवार अन्तर्गत धितोपत्र बोर्डबाट इजाजत प्राप्त ब्रोकर संस्था मार्फत खरिद-विक्री गरिन्छ ।

नेपाल स्टक एक्सजेन्जमा सूचिकरण नभएका तथा सूचिकरण खारेजीमा परेका कम्पनीका शेयर किन वेच गर्न सकिने बजारलाई Over the Counter Market or OTC Market भनिन्छ । यस बजारमा दलाल विना नै शेयर किनवेच गरिन्छ । नेपाल स्टक एक्सचेन्जमा सूचिकृत धितोपत्रहरू यस OTC Market मा खरिद-विक्री हुन सक्दैनन् ।

प्राथमिक बजारमा शेयर निष्कासन प्रक्रिया

प्राथमिक बजारमा शेयर निष्कासन गर्दा निम्न प्रक्रिया अपनाइन्छ ।

- क) कम्पनीहरूले पूँजीको आवश्यकता महसुस गरेपछि संचालनमा आएको न्यूनतम एक वर्ष पछि प्राथमिक बजारबाट पूँजी उठाउन सक्दछन् । के-कति रकमको पूँजी उठाउने, के कस्ता प्रतिभूति अर्थात् धितोपत्र जारी गर्ने, प्रत्येक प्रतिभूति स्रोतबाट अर्थात् साधारण शेयरबाट कति अग्राधिकार शेयरबाट कति, ऋणपत्रबाट कति पूँजी उठाउने हो सो को निर्णय संचालक समितिले गरि साधारण सभाबाट अनुमोदन गराउनु पर्दछ ।
- कम्पनीका विभिन्न निर्णयमा कम्पनिको साधारण सभामा सहभागी हुन पाउने, संचालक समितिमा प्रतिनिधित्व गर्न पाउने अधिकार भएको, मताधिकार भएको, आय र सम्पत्तिमा अन्तिम अधिकार भएको शेयरलाई साधारण शेयर भनिन्छ । पब्लिक लिमिटेड कम्पनिले साधारण शेयरबाट पूँजी उठाउँदा कम्पनी स्थापना गर्ने संस्थापक शेयर सदस्यहरूको शेयर पूँजीमा लगानी न्यूनतम ५१% र अधिकतम ७०% सम्म हुने गर्दछ भने सर्वसाधारण लगानीकर्ता, कर्मचारी, सामुहिक कोष र प्रभावित क्षेत्रका वासिन्दाको कुल ३०%देखि ४९% सम्म रहने गर्दछ । संस्थापक बाहेक सार्वजनिक रूपमा निष्कासन गरिने शेयरको निर्धारण यस प्रकार छः

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|---|-----|
| i) सामूहिक लगानी कोष : आव्हान गरिएको शेयरको | ५% |
| ii) कर्मचारी | |
| ५० जनासम्म भए आव्हान गरिएको शेयरको | २% |
| ५१-१०० जनासम्म भए आव्हान गरिएको शेयरको | ३% |
| १०१-२०० जनासम्म भए आव्हान गरिएको शेयरको | ४% |
| २०० जनाभन्दा माथि भए आव्हान गरिएको शेयरको | ५ % |
| iii) यदि कारोवार प्रभावित क्षेत्र भएः | १०% |

- iv) सर्वसाधारण जनता वा संस्थालाई: बाँकी शेयर
- v) सामूहिक लगानीकोष वा कर्मचारी वा प्रभावित क्षेत्रका वासिन्दालाई छुट्याइएको शेयरमध्ये कसैको निवेदन नपरेमा वा कम परेमा उक्त शेयर पनि सर्वसाधारण जनता वा संस्थाका लागि पुनः आव्हान गरिन्छ । लाभांशको दर पूर्व निर्धारित भएको आय र सम्पत्तिमा साधारण शेयरको भन्दा अघाडि अधिकार भएको मताधिकार नभएको, कम्पनीले नाफा आर्जन नगरेको वर्ष लाभांश बाड्नै पर्ने वाध्यता नभएको शेयरलाई पूर्वाधिकार शेयर (Preference Share) भनिन्छ ।
- ख) धितोपत्रको प्रकार र पूँजीको मात्रा निर्धारण गरेपछि धितोपत्र बोर्डबाट धितोपत्र निष्कासन वा बजारीकरण गर्न अनुमति प्राप्त संस्थालाई धितोपत्र निष्कासन गर्न विक्री प्रवन्धक (Merchant Banker) नियुक्त गरिन्छ ।
- ग) धितोपत्र बोर्डबाट साधारण शेयर निष्कासन गर्ने अनुमति लिएको दुई महिनाभित्र धितोपत्र निष्कासन गर्नुपर्ने भएकोले कम्पनीवारे जानकारी दिँदै विवरण पत्र (Prospectus) का साथ सर्वसाधारणलाई शेयर खरिद गर्न आव्हान गरिन्छ । आव्हान गर्नु अघि धितोपत्र बोर्डबाट विवरणपत्र स्वीकृत गराउनु पर्दछ । त्यस्तै तीन करोड रूपैयाभन्दा बढी रकमको साधारण शेयर वा हकप्रद शेयर निष्कासन गर्ने भए कम्पनीको आर्थिक सक्षमता, व्यवस्थापनमा गुणस्तर, जोखिमको स्तर, सुशासन, कम्पनीको विश्वासनियता, कानूनको पालनाका आधारमा साख निर्धारण (Credit rating) गराउनु पर्दछ । नेपालमा साख निर्धारण गर्ने काम ICRA NEPAL संस्थाले गर्दै आएको छ । यस संस्थाले कम्पनीको अवस्था अनुसार स्वस्थ कम्पनीलाई IPO Grade 1, औषत भन्दा केही राम्रो संस्थालाई Grade 2, औषत अवस्थाको संस्थालाई Grade 3 र कमजोर वित्तिय तथा व्यवस्थापन भएको संस्थालाई Grade 4 दिने गर्दछ । विवरण पत्रमा शेयर जारी गर्ने कम्पनीको ग्रेड पनि उल्लेख गरिएको हुन्छ र लगानी गर्नु पूर्व उक्त ग्रेडमाथि विचार पुर्‍याउनु पर्दछ । यो ग्रेड अंकित गर्नुपर्ने व्यवस्था २०६९ फागुन ११ गते बाट लागु गरिएको हो ।
- घ) प्राथमिक शेयरको विक्री खुल्ला गरि दरखास्तका साथ आवश्यक रकम जम्मा गर्न लगाइन्छ । दरखास्त दिने समय अवधि दरखास्त खुलेको मितिबाट न्यूनतम चार दिन र अधिकतम पन्ध्र दिन हुन्छ । अधिकतम अवधिमा सम्पूर्ण शेयरको दरखास्त नआएमा धितोपत्र बोर्डको स्वीकृतीमा थप पन्ध्र दिन विक्री खुल्ला गरिन्छ । दरखास्त संकलन केन्द्रको जानकारी विवरण पत्रमा खुलाइएको हुन्छ । दरखास्त फाराम निःशुल्क वा बढीमा रु. २०० सम्म लिई वितरण गरिन्छ ।
- ङ) दरखास्त संकलन गरेपछि शेयर बाँडफाँड गरिन्छ । शेयर बाँडफाँडको सूचना जारी गरेपछि दरखास्त नपरेका वा कम संख्यामा परेका आवेदकलाई रकम फिर्ता दिने व्यवस्था छ । उक्त रकम लिन जाँदा दरखास्त फारमका साथ पेश गरेको नागरिकताको प्रतिलिपिको सक्कल प्रति आवश्यक पर्दछ । धितोपत्र बाँडफाँड गरेको ५ दिन भित्र बाँडफाँडमा नपरेका तथा आंशिकरूपमा बाँडफाँडमा परेका आवेदकको रकम फिर्ता दिन नसकेमा विक्री बन्द भएको दिनदेखि भुक्तानी दिन सुरु गरेको अघिल्लो दिन सम्मको

अवधिको व्याज सरकारी ऋणपत्रको प्रचलित व्याजदर सहित फिर्ता गर्नुपर्ने नियम छ । त्यस्तै निष्कासन गरिएको शेयरको कम्तिमा ५०% शेयर विक्री हुन नसकेमा व्याज सहित सबै रकम फिर्ता गर्नुपर्दछ ।

च) शेयर बाँडफाँड भए पश्चात प्रत्येक शेयरधनीलाई शेयर बाँडफाँड भएको मितिले दुई महिना भित्र कम्पनीको छाप लागेको प्रमाण-पत्र दिनु पर्ने व्यवस्था कम्पनी ऐन २०६३ ले गरेको छ । शेयर खरिद गर्दा दरखास्त दिँदा निम्न कुराहरु जानी राख्ने राम्रो हुन्छ ।

- जुन कम्पनीको शेयर खरिद गर्न खोजिदै छ त्यस कम्पनीको संचालकको क्षमता, योग्यता र नैतिकता कम्पनीको भविष्य, साख निर्धारण गर्ने संस्थाले दिएको स्तर, सामूहिक लगानी कोषले लगानी गर्न मानेको वा नमानेको, जोखिम व्यवस्थापन गर्न चालेका कदम, जोखिम अनुसार प्रतिफल दर भए नभएको, लगानीको उद्देश्य, लगानी क्षेत्र जस्त विषयवस्तु वारे प्रष्ट हुनु पर्छ ।

- रु. ५००० भन्दा बढी लगानी गर्ने जम्मा गर्नु पर्दछ र १० लाख रुपैयाँ भन्दा बढीको दरखास्त दिँदा अनिवार्य रूपमा आवेदकले पान नं. उल्लेख गर्नुपर्दछ ।

- दुई जना सम्मले संयुक्त रूपमा दरखास्त दिन सकिन्छ । संयुक्त दरखास्त दिएपछि पुनः व्यक्तिगत रूपमा दरखास्त दिन मिल्दैन । यदि एकै व्यक्तिले एकभन्दा बढी दरखास्त दिएमा सबै दरखास्त रद्द गरिन्छ ।

- प्रचलित कानून बमोजिम स्थापित संस्थाले साधारण शेयरका लागि दरखास्त दिन चाहेमा संस्था दर्ता भएको प्रमाणपत्रको प्रतिलिपि र सम्बन्धित संस्थाको संचालक समितिले साधारण शेयर खरिद गर्ने निर्णयको प्रतिलिपि समेत पेश गर्नु पर्दछ ।

- दरखास्त दिँदा न्यूनतम ५० कित्ता शेयरको आवेदन गर्नुपर्दछ ।

- दरखास्त दिएपछि धितोपत्र बाँडफाँड गर्न निम्न समय लाग्दछः

दरखास्त संख्या	बाँडफाँड गरिसक्नुपर्ने अवधि
१,००,००० सम्म	४० दिन
२,००,००० सम्म	५० दिन
३,००,००० सम्म	६० दिन
३,००,००० भन्दा बढी	७० दिन

- शेयर बाँडफाँड प्रक्रिया यस प्रकार छ :

एउटा दरखास्त फारममा रु. ५०,००० सम्मको शेयर आवेदकलाई साना लगानीकर्ता र सो भन्दा बढीको आवेदन गर्नेलाई ठूला लगानीकर्ता भनिन्छ । सर्वसाधारणलाई वितरण गरिने शेयरमध्ये ४०% शेयर साना लगानीकर्तालाई र ६०% शेयर ठूला लगानीकर्तालाई बाँडफाँड गरिन्छ । तर ५०,००० रुपैयाँसम्मको आवेदन गर्ने आवेदकको संख्या ४०% भन्दा बढी भए सबै आवेदकलाई एउटै समूहमा राखेर दामासाहीले बाँडफाँड गरिन्छ । शेयर बाँडफाँड गर्दा एकजनालाई न्यूनतम १० कित्ता शेयर दिनैपर्ने भएकाले दामासाहिमा

परेका १० कित्ता भन्दा कम शेयर पाउने आवेदकहरूमध्ये चिह्ना गरी कसैलाई १० कित्ता शेयर दिइन्छ त कसैलाई शेयर नै दिइदैन ।

उदाहरण: एउटा कुनै कम्पनीले प्राथमिक बजारमा सर्वसाधारणलाई विक्री गर्ने गरी ५००,००० कित्ता शेयर प्रति शेयर रु. १०० का दरले जारी गर्‍यो । आवेदकमध्ये ५०००० रूपैयासम्मको निवेदन दिने २००० जनाबाट १० लाख कित्ताको निवेदन पर्‍यो भने ५०००० रूपैया भन्दा बढीको आवेदन ४००० जनाले ३० लाख कित्ताको आवेदन पर्‍यो ।

विभिन्न आवेदकमध्ये ६ जनाको आवेदन यस प्रकार थियो:

आवेदक	आवेदन संख्या	जम्मा आवेदन रूपैयामा
क	१००० कित्ता	रु. १००,०००
ख	५००० कित्ता	रु. ५००,०००
ग	६०० कित्ता	रु. ६०,०००
घ	४०० कित्ता	रु. ४०,०००
ङ	३०० कित्ता	रु. ३०,०००
च	५० कित्ता	रु. ५०००

माथिका ६ जना आवेदकले पाउने शेयर संख्या यसरी निकाल्न सकिन्छ ।

कुल आवेदन मध्ये ५०००० रूपैयासम्मको आवेदन दिने साना लगानीकर्तालाई जारी शेयरको ४०% अर्थात् २००,००० शेयर वितरण गरिने छ भने ५०००० भन्दा बढीको आवेदकलाई बाँकी ३००,००० कित्ता शेयर वितरण गरिने छ । साना लगानीकर्ताले जम्मा १० लाख कित्ताको निवेदन दिए र उनीहरूले पाउने जम्मा शेयर २००००० कित्ता भएकाले आवेदकहरूले आवेदनको २०% शेयर पाउने छन् । त्यस्तै ५०,००० रूपैयाभन्दा बढीको आवेदन ३० लाख कित्ताको आएको र उनीहरूले पाउने जम्मा शेयर ३००,००० भएकाले आवेदनको १० % शेयर पाउने छन् । माथिका ६ जनाले पाउने शेयर संख्या यस प्रकारको हुनेछ:

आवेदक	आवेदन शेयर संख्या	पाउने दर	पाउने शेयर संख्या
क	१००० कित्ता	१०%	१०० कित्ता
ख	५०० कित्ता	१०%	५०० कित्ता
ग	६०० कित्ता	१०%	६० कित्ता
घ	४०० कित्ता	२०%	८० कित्ता
ङ	३०० कित्ता	२०%	६० कित्ता
च	५० कित्ता	२०%	१० कित्ता

- बैंक, वित्तीय कम्पनी तथा विमा समूहका संस्थापक शेयर कम्पनी संचालनमा आएको ५ वर्षसम्म विक्री गर्न वा धितो राख्न पाइँदैन तर अन्य समूहका जस्तै होटल, जलविद्युत उत्पादनमूलक कम्पनीका संस्थापक शेयर बाँडफाँड गरेको ३ वर्षसम्म विक्री गर्न तथा धितो राख्न पाइँदैन । सो अवधि पश्चात् भने निश्चित मापदण्ड पूरा गरी दोस्रो बजारमा संस्थापक शेयर पनि खरिद विक्री गर्न पाइन्छ । सर्वसाधारणलाई विक्री गरेका साधारण शेयर तथा हकप्रद शेयर बाँडफाँड भएको ३० दिन भित्र नेपाल स्टक एक्सचेन्जमा

सूचिकरण गर्नुपर्ने र सूचिकरण भएको सूचना राष्ट्रिय पत्रपत्रिकामा प्रकाशन भएको सात दिन पछिबाट धितोपत्र बजारमा शेयर किनबेच गर्न सकिन्छ ।

- शेयर प्रमाणपत्र हराएमा पुनः प्राप्त गर्न कम्पनी वा शेयर रजिष्टारको कार्यालयमा निवेदन दिएपछि सम्बन्धित कम्पनीले शेयर हकदावी सम्बन्धी ३५ दिने सूचना राष्ट्रिय दैनिकमा प्रकाशन गर्दछ र कसैको हकदावी नपरेमा सम्बन्धित शेयरधनीलाई शेयर प्रमाणपत्रको प्रतिलिपि उपलब्ध गराउँदछ ।

धितोपत्र दोस्रो बजारमा शेयर खरिद विक्री प्रक्रिया

कारोवार विधि र समय

नेपालमा औपचारिक रूपमा धितोपत्रको खरिद-विक्री गर्न दोस्रो बजारको रूपमा खोलिएको संस्था नेपाल स्टक एक्सचेन्ज (नेप्से) हो । यस संस्थामा सूचिकृत कम्पनीका शेयर तथा ऋणपत्रको खरिद विक्री धितोपत्र बोर्डबाट इजाजत प्राप्त ब्रोकर संस्था मार्फत गरिन्छ । यहाँ क्रेता र विक्रेता आफै मिलेमतो गरेर शेयरको खरिद विक्री गर्न सकिदैन । शेयरको खरिद गर्नु परेमा धितोपत्र बोर्डबाट स्वीकृत प्राप्त ५० वटा ब्रोकर संस्थामध्ये खरिद गर्न इजाजत प्राप्त कुनै एक संस्थामा गई ग्राहक परिचय विवरण र खरिद आदेश विवरण भर्नु पर्दछ । कतिवटा शेयर, कति मूल्यसम्म, कुन कम्पनीको खरिद गर्ने हो सो को यकिन गरि खरिद आदेश विवरण भर्नुपर्छ । त्यस्तै शेयर विक्रेताले पनि कुनै एक ब्रोकर संस्थामा गई कुन कम्पनीको कतिवटा शेयर, कति मूल्य सम्ममा विक्री गर्ने हो सो कुरा खुलाई विक्री आदेश विवरणका साथै दरखास्त रुजुको फाराम भर्नुपर्दछ । ब्रोकर कम्पनीलाई दुईवटा फाराम बुझाएपछि धितोपत्र विक्री फाराम बुझेको रसिद लिनु पर्दछ । धितोपत्र विक्रेताको शेयर प्रमाण-पत्र कागजी नभई डिम्याट (Demat) गराएको भए डिम्याट खाता खोलेको निक्षेप सदस्यकहाँ जाने र हस्तान्तरण निर्देशन पूँजी भर्ने । यो पूर्जी भरेपछि निक्षेप सदस्यहरूले शेयर विक्रेताको खाता जाँच गरी विक्री गर्न चाहेको शेयर संख्या निश्चित गरी दरखास्त रुजु गर्दछ । दस्तखत रुजु भएपछि निक्षेप सदस्यले शेयर विक्रेताको आदेश बमोजिम दलाल संस्थाको विक्री खातामा सारिदिन्छ ।

२०६४ भाद्र ७ अघि बोल कबोल प्रथा (Open-out cry) बाट खरिद र विक्री आदेश प्राप्त ब्रोकर संस्थाका प्रतिनिधिहरू नेप्सेको कारोवार कक्षमा भेला भई आपसी मोलमोलाई गरी शेयर किनबेच गर्दथे । तर २०६४ भाद्र ७ गते पश्चात कम्प्यूटरकृत कारोवार प्रणाली (Automated Trading System) सुरु भएकाले ब्रोकर संस्थाको कार्यालयमा बसेर कम्प्यूटरमा अंकित खरिद मूल्य र विक्री मूल्यमा आपसी मोलमोलाई गरी खरिद विक्री निश्चित गर्दछन् । कारोवार हुने दिन र समय यस प्रकार रहेको छः

शेयरको प्रकृति	बार	समय
रेगुलर लट (१० वा १० ले भाग जाने शेयर संख्या)	आइतवारदेखि विहिवारसम्म	११:५५देखि ३ बजेसम्म

अडलट		
१ देखि ९ सम्मका खुद्रा शेयर	शुक्रवार	१२:०० बजेदेखि १ बजेसम्म

(स्रोत: नेपाल एटक एक्सचेन्जको प्रतिवेदन)

सर्किट ब्रेकर

शेयर मूल्य घटवढ र सर्किट ब्रेकर (Circuit Breaker) लगाउने नियम यस प्रकार रहेको छ । धितो पत्रको मूल्यमा हुनसक्ने अस्वाभाविक उतारचढावलाई नियन्त्रण गर्न मूल्य घटवढको सिमा नेपाल स्टक एक्सचेन्जले तोकिदिएको छ । कारोवार हुने दिनमा पहिलो कारोवार अधिल्लो दिनको अन्तिम मूल्यको ५% र त्यसपछिका किनबेच अधिल्लो कारोवारको २% सम्म मात्र थपघट गर्न पाइन्छ । सुरुको ५% मूल्य घटवढ दिनको ११:५५ बाट १२:०० बजेसम्म मात्र गर्न सकिन्छ । नगद लाभांश, बोनस शेयर र हकप्रद शेयर वितरण गर्दा सम्बन्धित कम्पनीको सात दिन बुक क्लोज गरिन्छ अर्थात् नामसारी कार्य बन्द गरिन्छ । बुक क्लोज गरेपछि शेयर किन्ने व्यक्तिले उक्त घोषणा गरिएको लाभांश बोनस शेयर र हकप्रद शेयर किन्ने अधिकार नपाउने हुँदा त्यसबेला शेयरको मूल्य घट्दा ५% वा २% को नियम लागु नभई जतिपनि घट्न सक्छ । तर जब उक्त बुक क्लोजको अवधि समाप्त भई बुक ओपन हुन्छ, त्यसबेला पुनः उक्त ५% र २% को नियम पुनः लागु हुन्छ । शेयर मूल्यमा हुने अस्वाभाविक उतारचढावलाई नियन्त्रण गर्न २०६३ असोज १० गते बाट सर्किट ब्रेक लगाउने व्यवस्था थालिएको छ ।

२०६५ साल भाद्र ९ गते पछि बाट सर्किट ब्रेक लगाउने नियम यस प्रकार छः

- कारोवार सुरु भएको पहिलो १ घण्टामा (१ बजेसम्म) नेप्से परिसूचक अधिल्लो दिनको भन्दा ३% बढे वा घटेमा १५ मिनेटका लागि सर्किट ब्रेक लगाई सबै कम्पनीको कारोवार पूरै कारोवार स्थगन गर्ने ।
- पुनः कारोवार खुलेपछि २ बजेभित्र नेप्से परिसूचक अधिल्लो दिनको तुलनामा ४% बढे वा घटेमा सबै कम्पनीमा कारोवारलाई ३० मिनेटका लागि सर्किट ब्रेक लगाई बन्द गर्ने ।
- पुनः कारोवार खुलेपछि नेप्से परिसूचक अधिल्लो दिनको तुलनामा ५% बढे वा घटेमा उक्त दिन पूरै समयकालागि सबै कम्पनीका कारोवार स्थगन गर्ने ।

खरिद विक्रीमा लाग्ने कमिसन शुल्क र कर

धितोपत्र खरिद विक्री गर्दा तिर्नु पर्ने कमिसन र कर यस प्रकार रहेको छ । शेयर खरिद गर्दा र विक्री गर्दा दुवै पटक ब्रोकर संस्थालाई कमिशन तिर्नु पर्दछ । जुन कारोवारको रकम अनुसार लाग्ने गर्दछ ।

शेयर कारोवार रकम	कमिसन दर
रु. ५०,००० सम्म	१%
रु.५०,००१ देखि रु. ५००,००० सम्म	०.९ %

रु. ५००,००१ देखि रु(१०,००,००० सम्म ०.८ %

रु. १०,००,००० भन्दा बढी ०.७ %

यस्तै धितोपत्र बोर्ड कमिशन शेयर खरिद विक्री गर्दा दुवै पटक कारोवारको ०.०१५% लाग्ने गर्दछ । त्यस्तै नामसारी गर्दा नामसारी शुल्क शेयर खरिद गर्दा रु. ५। लाग्ने गर्दछ । शेयर विक्री गर्दा नाफाको ५% व्यक्तिलाई र नाफाको १०% संस्थालाई लाग्ने गर्दछ ।

उदाहरण: 'क' भन्ने व्यक्तिले कुनै एक कम्पनीको शेयर २०७२।९।१० गते रु १६०० का दरले २०० कित्ता किनेको रहेछन् । उनले उक्त शेयर २०७३ जेठ ३० गते ब्रोकर मार्फत 'ख' भन्ने व्यक्तिलाई प्रतिकित्ता रु. २००० का दरले विक्री गरेछन् भने 'क' भन्ने व्यक्तिले शेयर विक्री गर्दा पाउने रकम यसरी निकालिन्छ ।

खरिद विक्री गर्दाको जम्मा रकम:

खरिद मूल्य = २०० कित्ता × रु. १६०० कित्ता= रु.३२०,०००

ब्रोकर कमिसन = ३२०००० × ०.९% = रु.२८८०

धितोपत्र बोर्ड कमिसन = ३२०००० × ०.०१५% = रु. ४८

नामसारी शुल्क = रु.५

जम्मा खरिद मूल्य रु. ३,२२,९३३

शेयर विक्रीबाट पाउने रकम:

विक्री मूल्य = २०० कित्ता × रु. २००० कित्ता= रु.४००,०००

ब्रोकर कमिसन = ४००,००० × ०.९% = रु.३६००

धितोपत्र बोर्ड कमिसन = ४००००० × ०.०१५% = रु. ६०

खुद विक्री मूल्य (विक्री मूल्य - कमिसन) ३,९६३४०

पूँजीगत लाभ कर = पूँजीगत लाभको ५%

= (खुद विक्री मूल्य-जम्मा खरिद मूल्य) × ५%

= (३९६३४० - ३२२९३३) × ५%

= ७३,४०७ × ५%

= ३६७०.३५

शेयर विक्री गरी 'क' ले पाउने खुद रकम

= खुद विक्री मूल्य-पूँजीगत लाभ कर)

= ३९६३४० - ३६७०.३५

= ३९२६६९.६५

खुद नगद नाफा = रु. ३९२६६९.६५ - ३२२९३३

= रु. ६९,७३६.६५

भट्ट हेर्दा प्रति शेयर ४०० नाफा गरी २०० शेयर विक्री गर्दा रु. ८०,००० नाफा भयो जस्तो देखिए पनि कर र कमिशनले गर्दा यथार्थ नाफा कम हुन्छ ।

शेयर खरिद विक्री कार्य पूर्णरूपमा सम्पन्न गर्न कारोवार भएको (खरिद विक्रीको निश्चित गरेको) २ दिन भित्र शेयर खरिद गर्नेले आवश्यक रकम र शेयर विक्रेताले शेयर प्रमाण-पत्र ब्रोकरलाई हस्तान्तरण गर्नुपर्दछ । कारोवार भएको ३ दिन भित्र नेप्सेमा आवश्यक रकम र शेयर प्रमाणपत्र बुझाई सक्नु पर्दछ । यदि शेयरको प्रमाणपत्र नभई डिम्याट गराएको भए पनि तीन दिन भित्र कारोवारको राफासाफ गराई सक्नु पर्दछ ।

डिम्याट खाता

डिम्याट खाता (Demat Account) भन्नाले आफूले खरिद गरेका एकीकृत गरी कम्प्युटरमार्फत विद्युतीय प्रणालीमा परिणत गरी अभिलेख राख्ने कामलाई Dematization वा छोटकरीमा Demat गर्नु भनिन्छ । शेयर किनवेच गर्दा कागजी प्रमाणपत्र हस्तान्तरण नभई सोही Demat खातामा थपघट गरिन्छ । यस्तो खाताखोल्न ब्रोकर संस्था, बैंक वा मर्चेन्ट बैंकले अनुमति लिएका हुन्छन् । यस्तो खाता खोल्न सकिने संस्थाको सूची वेब पेज www.cdsenp.com वाट प्राप्त गर्न सकिन्छ ।

यस्तो खाता खोलेपछि १६ अङ्कको Beneficial Owner Identity (BOID) नम्बर प्रदान गरिन्छ । यो खाता खोल्न एक प्रति फोटो र नागरिकता प्रमाणपत्रको प्रतिलिपि आवश्यक पर्दछ । यो खाता धितोपत्र नकिनेका व्यक्तिले पनि खोल्न सकिन्छ । यस्तो खाता एक भन्दा बढी निक्षेप सदस्यकहाँ पनि खोल्न सकिन्छ । यो खाता खोल्न रु. ५० र वार्षिक नवीकरण शुल्क रु. १०० लाग्दछ । डिम्याटमा राखिएका शेयरलाई पुनः कागजी प्रमाणपत्रको रूपमा पनि परिवर्तन गर्न सकिन्छ जसलाई Demat भनिन्छ । Demat खाता खोल्नेलाई बोनस शेयर सम्बन्धित कम्पनीले सोही खातामा जम्मा गरिदिन्छ । त्यस्तै हकप्रद शेयर पनि Demat खातामा जम्मा हुन्छ । यो खातामा रहेका शेयरको विवरण आवश्यक पर्दा वा हरेक तीन महिनामा प्राप्त हुन्छ । Demat गरिएका शेयर विक्री गर्न, धितो राखि ऋण लिन समेत सकिन्छ ।

नेपाल स्टक एक्सचेन्जले प्रकाशन गर्ने विभिन्न परिसूचकहरूको अर्थ

नेप्से परिसूचकको अर्थ र निकाल्ने तरिका

नेपालमा धितोपत्रको कारोवार दोस्रो बजारमार्फत सम्पन्न गर्न औपचारिक रूपमा स्थापना भएको संस्थालाई Nepal Stock Exchange वा छोटकरीमा NEPSE भन्ने गरिन्छ । आन्तरिक पूँजी परिचालन गरी पूँजी बजारको विकास गर्न २०३३ साल असार २३ गते सेक्युरिटी खरिद-विक्री केन्द्रको स्थापना भयो । पछि धितोपत्र कारोवार ऐन २०४९ अनुसार २०५० जेठ १३ गते उक्त सेक्युरिटी खरिद-विक्री केन्द्रलाई नेपाल स्टक एक्सचेन्जमा परिणत गरियो । धितो पत्रको औपचारिक कारोवार २५ वटा ब्रोकर संस्था मार्फत २०५० माघ ३० गतेबाट शुरु भएको हो । सोही मितिदेखि नेप्से परिसूचकको गणना गर्न थालिएको हो । हाल धितोपत्र ब्रोकर संस्था ५० वटा पुगेका छन् भने नेपाल स्टक एक्सचेन्जमा २०७३ कार्तिक २८

मा २२८ वटा पब्लिक लिमिटेड कम्पनीले आफ्नो शेयर तथा प्रमाणपत्र सूचिकृत गराई कारोवार गर्दै आएका छन् । यहाँ पब्लिक लिमिटेड कम्पनीका धितोपत्रको अलवा सरकारी ऋणपत्रहरूको समेत कारोवार गरिन्छ ।

नेप्सेमा दर्ता हुन पब्लिक लिमिटेड कम्पनीको चुक्ता पूँजी २५ लाख भएको, कम्तिमा ५०० वटा शेयर सर्वसाधारणलाई गरि गरेको, १ करोड देखि ५ करोड सम्म पूँजी हुने कम्पनीले २५% शेयर सर्वसाधारणलाई जारी गरेको, ५ करोड रूपैयाभन्दा बढी पूँजी हुने कम्पनीले १५% शेयर सर्वसाधारणलाई विक्री गरेको हुनुपर्दछ । यस नेप्सेमा शेयर सूचिकृत गर्न पूँजी अनुसार दर्ता शुल्क र वार्षिक शुल्क लाग्दछ । यस्तो शुल्क सम्बन्धित कम्पनीले भुक्तानी गर्नु पर्दछ ।

पूँजीको मात्रा	सूचीकृत शुल्क	वार्षिक शुल्क
रु. १ करोड सम्म	पूँजीको ०.२ % वा न्यूनतम १५०००	रु. १५०००
रु. ५ करोड सम्म	पूँजीको ०.१५% वा न्यूनतम ४५०००	रु. २५०००
रु. १० करोड सम्म	पूँजीको ०.१०% वा न्यूनतम ७५०००	रु. ३५०००
रु. १० करोड भन्दा माथि	पूँजीको ०.०७५ % वा न्यूनतम १०००००	रु. ५००००

नेपाल स्टक एक्सचेन्जले २०६० माघ ३० गतेवाट नेप्से परिसूचक (NEPSE Index) को गणना गर्दै आएको छ । पहिलो दिनको कुल बजार पूँजीकरणको मात्रालाई १०० आधार मानि हरेक दिनको कुल बजार पूँजीकरण (Total Market Capitalization) को मात्रा अनुसार नेप्से परिसूचक पनि परिवर्तन हुँदै जान्छ । यहाँ कुल बजार पूँजीकरण भन्नाले नेप्सेमा दर्ता भएका सबै कम्पनीमा सबै सूचीकृत शेयर (संस्थापक तथा सर्वसाधारणलाई वितरण गरेको दुवै) अन्तिम बजार मूल्यसँग गुणन गरी आउने रकमलाई जनाउँछ । अर्थात् सबै सूचीकृत कम्पनीका सबै सूचीकृत शेयर विक्री गर्दा आउने कुल रकम नै कुल बजार पूँजीकरण हो । २०७३ कार्तिक २८ गते त्यस्तो कुल बजार पूँजीकरण १८ खर्व ८९ अर्ब २३ करोड २५ लाख ३० हजार पुगेको छ । २०६० माघ ३० गतेको आधार कुल बजार पूँजीकरणमा त्यसपछि सूचिकृत भएका बोनस शेयर हकप्रद शेयर नयाँ थपिएका शेयर गरी जम्मा आधार बजार पूँजीकरण सो मितिमा १ खर्व ११ अर्ब १३ करोड १३ लाख कायम भएको छ । यो आधार बजार पूँजीकरण थप शेयर सूचिकृत हुने वित्तिकै बढ्दछ । नेप्से परिसूचक लाई कुनै दिनको कुल कारोवार (खरिद-विक्रीको रकम) ले असर नगरी हरेक दिनको अन्तिम शेयर मूल्यले मात्र असर गर्दछ ।

नेप्से परिसूचक निकाल्ने तरिका यस प्रकार छ

चरण-१ आधार बजार पूँजीकरण गणना गर्ने

२०६० साल माघ ३० गते सूचिकृत सबै शेयरको बजार मूल्य र त्यसपछि थप सूचिकृत शेयरको प्रवेश मूल्यको जोड नै आधार बजार पूँजीकरण हो ।

चरण-२) जुन दिनको नेप्से परिसूचक निकाल्ने हो त्यस दिनको कुल बजार पूँजीकरण गणना गर्ने । नेप्सेमा दर्ता भएका सबै कम्पनीको सबै सूचीकृत साधारण शेयर (Equity share) सँग अन्तिम पटक भएको कारोवार मूल्य गुणन गरि कुल बजार पूँजीकरण निकाल्ने

$$\text{चरण-३: नेप्से परिसूचक} = \frac{\text{गणना गर्ने दिनको कुल बजार पूँजीकरण}}{\text{आधार बजार पूँजीकरण}} \times 100$$

२०७३ कार्तिक २८ गतेको नेप्से परिसूचकको गणना यस प्रकार छ

$$\text{नेप्से परिसूचक} = \frac{2073 \text{ कार्तिक } 28 \text{ को कुल बजार पूँजीकरण}}{2060 \text{ साल माघ } 30 \text{ को कुल बजार पूँजीकरण र थप समायोजन}} \times 100$$

$$2073/2060 = \frac{रु = १८,८९,२३,२५,३०,०००}{१,११,१३,१३,००,०००} \times 100 = १७००$$

२०६० माघ ३० गते १०० रूपैयाँ भएको एउटा शेयरको बजार मूल्य २०७३ जेष्ठ २७ गते रु. १५६६.७० पुगेको माथिको आँकडाले देखाउँछ । नेप्से परिसूचक घटबढ भइरहन्छ । लगानीकर्ताले कम्पनीहरूको वित्तीय अवस्था भविष्यमा सृद्ध हुँदै जाने र उच्च नाफा आर्जन गर्ने संभावना महसुस गरे भने त्यस्ता कम्पनीको शेयरको माग बढ्दछ, माघ बढे पछि मूल्य बढ्न जान्छ र शेयरकोमूल्य बढे नेप्से परिसूचक पनि बढ्दै जान्छ । लगानीकर्ताले कम्पनीको वित्तीय अवस्था कमजोर बन्दै गएको अपेक्षित नाफा आर्जन गर्न नसक्ने सम्भावना भएको, देशमा बन्द, हडताल, राजनैतिक अस्थिरता बढ्दै गएको महसुस गरेमा भएको शेयर विक्री गर्न थाल्दछन् । फलस्वरूप शेयरको पूर्ति बढ्ने भएकाले शेयरको मूल्य पनि घट्न पुगी समग्र नेप्से परिसूचक घट्न जान्छ । धेरै शेयर संख्या भएका कम्पनी र धेरै बजार मूल्य भएका कम्पनीको शेयरको मूल्य थोरै थपघट हुँदा पनि नेप्से परिसूचकमा धेरै परिवर्तन आउँछ ।

नेपालको शेयर बजार पूर्ण प्रतिस्पर्धात्मक बन्न नसकेको विभिन्न अनुसन्धानले देखाएको छ । शेयर कारोवारप्रति पर्याप्त ज्ञान विना नै दोस्रो बजारमा कारोवार गर्नेको संख्या ठूलो छ । सही तरिकाले विश्लेषण नगरि नै लगानी गर्ने लगानीकर्ताहरूलाई शेयर बजारमा हुने गलत अभ्यासहरूले फँसाउन सक्दछन् । त्यस्ता गलत अभ्यासहरू जस्तै: Pooling (केही व्यक्तिले समूह बनाई आपसमा बढी मूल्यमा शेयर खरिद विक्री गरेर अनावश्यक मूल्य बढाई अन्य लगानीकर्तालाई आकर्षित गरी बढी मूल्यमा विक्री गरेर नाफा आर्जन गर्नु), cornering (कुनै व्यक्ति वा समूहले कुनै चलित कम्पनीको सबै शेयर किनेर थुपार्नु र बजारमा शेयरको अभाव सिर्जना गरेर बढी मूल्यमा विक्री गर्नु) Rumoring (कुनै कम्पनी बारे अनावश्यक हल्ला चलाएर अन्य लगानीकर्तालाई शेयर खरिद गर्न आकर्षित गर्नु वा विक्री गर्न लगाउनु) washale (आफ्नै परिवारका सदस्यलाई कम मूल्यमा शेयर विक्री गरी घाटा देखाई बजारमा शेयरको मूल्य घट्दै गएको देखाई अन्य लगानीकर्ताको शेयर कम मूल्यमा खरिद गर्नु) Insider Trading (कम्पनीको उच्च ओहोदामा बसेका सञ्चालक तथा कर्मचारीले कम्पनीको गोप्य निर्णयलाई दुरुपयोग गरी फाइदा लिने काम गर्नु) Ramping (बजार बन्द हुने बेलामा छिटो छिटो मूल्य अनावश्यक बढाई दिएर भोलिपल्टको कारोवारलाई प्रभावित गर्नु) बाट लगानीकर्ता जोगिनु पर्दछ ।

नेप्से फ्लोट परिसूचक (Float Index) को अर्थ र गणना विधि

नेप्से परिसूचक सबै सूचिकृत शेयरको अन्तिम मूल्यलाई आधारित भएर गणना गरिएको हुन्छ । समग्र सूचिकृत शेयरमा संस्थापकको शेयर, कर्मचारीको शेयर , प्रभावित क्षेत्रका वासिन्दालाई बाँडेको शेयर र सर्वसाधारणलाई व्यक्तिलाई बाँडेको शेयर समावेश भएको हुन्छ । संस्थापक, कर्मचारी र प्रभावित क्षेत्रलाई बाँडेको शेयर निश्चित अवधि र शर्त पूरा नहुन्जेलसम्म दोस्रो बजारमा खरिद-विक्री गर्न पाइदैन । तर साधारण व्यक्तिलाई बाँडेको शेयर बाँडफाँडको ३० दिन भित्र नेप्सेमा सूचिकृत गरेपछि सो को सूचना राष्ट्रिय पत्र-पत्रिकामा प्रकाशन भएको सात दिन पछि देखि दोस्रो बजारमा खरिद विक्री गर्न सकिन्छ । त्यसैले नेपालमा खरिद विक्री हुने शेयर भनेको सर्वसाधारण लाई विक्री गरेका र निश्चित मापदण्ड पूरागरी बजारमा खरिद विक्री गर्न अनुमति प्राप्त शेयर हुन् ।

कम्पनीले जारी गरेका जम्मा शेयरमध्ये शेयर बजारमा खरिद विक्री गर्न सकिने कुल शेयर संख्यालाई मात्र आधार मानि गणना गरिएको परिसूचकलाई Float Index भनिन्छ । Float Index २०६५ भाद्र २६ गतेदेखि त्यहि दिनको फ्लोट शेयरको मात्र कुल बजार पूँजीकरणलाई १०० अङ्कको आधार मानी हरेक दिन गणना गर्न थालिएको हो । नेप्से परिसूचकको गणना धितोपत्र बजारमा बेच्न पाउने र नपाउने सबै शेयरको कुल बजार पूँजीकरण मूल्यलाई आधार मानि गरिन्छ भने फ्लोट इन्डेक्स बजारमा किनबेच गर्न पाइने शेयरको कुल बजार पूँजीकरणलाई आधार मानि गणना गरिने हुँदा नेप्से परिसूचकको घटवढले दिने अर्थभन्दा फ्लोट परिसूचकको घटवढले दिने अर्थ शेयर बजारका लागि बढि प्रभावकारी हुन्छ । फ्लोट परिसूचक यसरी गणना गरिन्छ ।

$$\text{Float Index} = \frac{\text{Current Market Value at all floated Shares}}{\text{Total Market Value of Floated Share in base Period}} \times 100$$

सेन्सेटिभ परिसूचक (Sensetive Index) को अर्थ

नेपाल स्टक एक्सचेन्जमा सूचिकृत भएका कम्पनीहरूमध्ये शेयर सदस्य १००० जना भन्दा बढी भएका लगातार तीन वर्ष नाफामा गएका, चुक्ता पूँजी दुई करोडभन्दा बढी भएका, पौष मसान्त र असार मसान्तमा वित्तीय प्रतिवेदन सार्वजनिक गर्ने, शेयरको अंकित मूल्य भन्दा कितावी मूल्य बढी भएका, सर्वसाधारण व्यक्तिलाई शेयर विक्री गरेका कम्पनीलाई नेपाल स्टक एक्सचेन्जले 'क' वर्गमा राख्दछ । 'क' वर्गमा राखेका कम्पनीहरूको शेयरको अन्तिम मूल्यका आधारमा कुल बजार पूँजीकरण गणनागरी निकालिएको परिसूचकलाई NEPSE Sensetive Index भनिन्छ । नेप्सेको उपलब्ध गराएको प्रेस विज्ञप्ति अनुसार हाल समूह 'क' मा १३१ वटा कम्पनीहरू (क) वर्गमा वर्गीकृत भएका छन् । वर्गीकरण अनुसार वाणिज्य बैंक समूहबाट २६ वटा, अन्य समूहबाट १, जलविद्युत समूहबाट ३, होटल समूहबाट १, विमा समूहबाट १७, वित्त समूहबाट २५, विकास बैंक समूहबाट ५६ र उत्पादन तथा प्रशोधन समूहबाट १ कम्पनी क वर्गमा परेका छन् ।

‘क’ वर्गमा राखिएका कम्पनीहरूको सूचिकृत शेयरमध्ये शेयर बजारमा खरिद विक्री गर्न सकिने शेयरको पूँजीकरणलाई मात्र आधारमानि गणना गरिएको परिसूचक लाई NEPSE Sensitive Float Index भनिन्छ । यी परिसूचक २०६५ भाद्र २६ गतेको शेयर मूल्यलाई १०० अंक आधार मानी गणना गरिंदै आएको छ ।

बोनस शेयर तथा हकप्रद शेयरको शेयर मूल्यमा असर

बोनस शेयरको अर्थ र शेयर मूल्यमा असर

कम्पनीले हरेक आर्थिक वर्षको अन्त्यमा आर्जित नाफाबाट केही रकम साधारण सभाबाट पास गरि लाभांशको रूपमा वितरण गर्दछन् । संस्थासँग पर्याप्त नगद वा बैंक मौज्दात भए, लाभांशको रूपमा नगद नै वितरण गर्दछन् तर संस्थासँग लाभांश बाँड्न पर्याप्त नगद नभएमा वा भए पनि लगानीका लागि नगद जगेडामा राखेमा शेयर सदस्यलाई नगद लाभांशको सट्टा केही साधारण शेयर लाभांशको रूपमा वितरण गर्दछन् भने त्यसरी वितरित शेयरलाई शेयर लाभांश वा वोनस शेयर भनिन्छ । सैद्धान्तिक नियमानुसार वोनस शेयर वितरण गर्नुको कुनै Economic Value हुँदैन । वोनस शेयर वितरण गरेपछि हुनुपर्ने प्रति शेयर

$$\text{मूल्य} = \frac{\text{वोनस शेयर वितरण अधिको एक शेयर मूल्य}}{1 + \text{वोनस शेयर वितरण दर}}$$

उदाहरण: मकालु कम्पनीको वोनस शेयर वितरण गर्नु अघि अर्थात् बुक क्लोज हुने अघिल्लो दिन प्रति शेयर मूल्य रु. ५०० छ । यस कम्पनीले १०% वोनस शेयर दिने निर्णय गर्‍यो । राम र श्याम सँग मकालु कम्पनीका १००-१०० कित्ता शेयर छन् । मानौ रामले वोनस शेयर वितरण अघि र श्यामले वितरण पछि उनिहरूसँग भएको शेयर विक्री गरे भने उनिहरूले पाउने कुल रकम यस प्रकार निकालिन्छ ।

रामले वोनस शेयर वितरण अघि शेयर विक्री	श्यामले वोनस शेयर वितरण पछि शेयर विक्री
शेयर संख्या= १०० कित्ता	शेयर संख्या = १००+१०=११० कित्ता
शेयर मूल्य= रु. ५००/कित्ता	शेयर मूल्य = ५००/१.१०= ४५४.५५/कित्ता
कुल शेयर विक्रीबाट प्राप्त	कुल शेयर विक्रीबाट प्राप्त
रकम = ५०० × १०० = रु. ५०,०००	रकम = ४५४.५५ × ११० = रु. ५०,०००

यसबाट के पुष्टि गर्न सकिन्छ भने Perfect Capital Market मा वोनस शेयरबाट शेयर सदस्यलाई केही आर्थिक फाइदा हुँदैन । तर नेपालको शेयर बजारमा वोनस शेयर बाँड्ने घोषणा गर्ने वित्तिकै एकाएक शेयरको मूल्य बढ्दै जान्छ । यसो हुनु भनेको अपरिपक्व शेयर बजार सम्बन्धी ज्ञान र बजारको होहोरेको पछि लागेको कारणले हो ।

हकप्रद शेयरको अर्थ र शेयर मूल्यमा असर

कम्पनीलाई थप शेयर पूँजी आवश्यक पर्दा एवं नियमनकारी निकायले शेयर पूँजी वृद्धि गर्न आदेश दिँदा दुई तरिकाले शेयर पूँजी जारी गर्दछ ।

क) सर्वसाधारणलाई नयाँ शेयर खरिद गर्न आह्वान गरेर

ख) पुराना शेयर सदस्यलाई हकप्रद शेयर किन्ने सुविधा दिएर

शेयर स्वामित्व भएका सदस्यलाई मात्र कम्पनीले नयाँ शेयर खरिद गर्ने अवसर प्रदान गरी जारी गरिएका नयाँ शेयरलाई हकप्रद शेयर भनिन्छ । हकप्रद शेयर पहिले आफुसँग भएको शेयरको अनुपातमा मात्र खरिद गर्न पाइन्छ, यसको विक्री मूल्य बजार मूल्यभन्दा कम हुन्छ, हकप्रद शेयर किन्नै पर्ने वाध्यता हुँदैन र हकप्रद शेयर किन्ने अधिकार केही रकम लिई अरुलाई विक्री गर्न पनि सकिन्छ । सैद्धान्तिक नियम अनुसार हकप्रद शेयर वितरण गरेपछि शेयरको मूल्य घट्दछ । त्यसबेला हुनुपर्ने शेयरको मूल्य निकाल्ने तरिका यस प्रकार छ:

$$\text{बुक क्लोज पछि पहिलो दिनको प्रति शेयरमूल्य (Pex)} = \frac{P_0 \times N + SP}{N + 1}$$

P_0 = Right on Price of Stock बुक क्लोज हुनु भन्दा अघिको मूल्य ।

N = No. of rights required to purchase one new share (नया एउटा हकप्रद शेयर किन्न चाहिने पुरानो शेयर संख्या)

SP = Subscription Price (एउटा हकप्रद शेयर किन्न कम्पनीलाई तिर्नुपर्ने सहूलियतपूर्ण मूल्य)

लगानी व्यवस्थापन (Portfolio Management)

वित्तीय लगानीबाट भविष्यमा हुने नोक्सानी कम गर्ने उद्देश्यले दुई वा दुईभन्दा बढी विभिन्न क्षेत्रमा लगानी गर्नुलाई लगानी मिश्रण (Portfolio) भनिन्छ । एक क्षेत्रको घाटालाई अर्को क्षेत्रमा हुन सक्ने नाफाले मिलान गरी लगानीकर्तालाई जोखिम घटाउन मद्दत गर्दछ । लगानी मिश्रणको मुख्य आसय Don't put all eggs in a single basket हो र यसको उद्देश्य जोखिमलाई न्यूनिकरण गरी नाफा वृद्धि गर्नु हो । वित्तीय लगानीमा हुने नोक्सानी कम गर्न ऋणात्मक सह-सम्बन्ध (Negative Correlated) भएका क्षेत्र पहिचान गरी लगानी गर्नुपर्छ । तीनलाख रूपैया भन्दा बढीको लगानी गर्नु परे लगानी व्यवस्थापन गर्ने इजाजत प्राप्त १५ वटा कम्पनीले लगानी मिश्रण बनाइ दिन्छन् । Portfolio Tracker Application ले पनि केही सहयोग गर्दछ । शेयर बजारबारे धेरै कुरा बुझ्न Securities Research Center and Services -SRCS मा सम्पर्क गर्नु उपयुक्त हुन्छ । यहाँ शेयर विश्लेषक रविन्द्र भट्टराईबाट आवश्यक परामर्श लिन पाइन्छ ।

उपसंहार

साधारण शेयर, अग्राधिकार शेयर एवं ऋणपत्रमा लगानी गर्नुपूर्व पर्याप्त जानकारी लिने छलफल गर्ने र आफ्नो उद्देश्य अनुसार विभिन्न कम्पनीमा बाँडेर लगानी गर्नुपर्दछ । शेयर बजार कहिले बढेको बढे र घटेको घटे गर्दै न । यो घटवढ भइरहन्छ । शेयर बजारले पुरै मातेर हिँडेको मानिस जस्तै चाल गर्दछ । त्यसैले शेयरको मूल्य बढ्दा साँढे र मूल्य घट्दा भालु देखापरेको हो । शेयरका लगानीकर्ताले आश, लोभ र डर गरी तीनवटा मनोविज्ञानलाई मिलाएर लान सक्नु पर्दछ । शेयर बजारमा कमाउँदाको आनन्द भन्दा गुमाउँदाको पीडा बढी हुन्छ । नेपालमा शेयर बजारको विकास समय संख्यात्मक हिसाले १३ वर्ष पुगे पनि गुणात्मक विकासले भर्खर पाइला टेक्दै छ । यसको सकरात्मक र नकारात्मक दुवै पक्षको विश्लेषण गरेर आफ्नो जोखिम लिन सक्ने क्षमता अनुसार लगानी गरि अर्थतन्त्रलाई चलायमान बनाउन धितोपत्र बजारको योगदान ठूलो छ । शेयर लगानीमा जोखिम मात्र छैन प्रतिफल (नाफा) पनि उच्च छ । त्यहि उच्च प्रतिफलको आशाले प्राथमिक बजारमा निष्कासन गरिएका शेयरको आवेदन सयौं गुणा सम्म पर्ने गरेको छ । प्राथमिक बजारमा लगानी गर्नेले भन्दा दोस्रो बजारमा कारोवार गर्नेले शेयर बजारको बढी विश्लेषण गर्न जान्नुपर्दछ ।

सन्दर्भ सामग्री

ऐन, नियम

कम्पनी ऐन २०६३

धितोपत्र कारोवार नियमावली २०५०

धितोपत्र बजार सञ्चालन सम्बन्धी नियमावली २०६४

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शेयर बाँडफाँड सम्बन्धि निर्देशिका-२०५१

पुस्तक:

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तुलसीप्रसाद घिमिरे*

परिचय

समष्टिगत आर्थिक नीतिका दुई प्रमुख पक्षहरू मौद्रिक नीति र वित्त नीति हुन् । मौद्रिक नीति केन्द्रीय बैंकसँग सम्बन्धित हुन्छ भने वित्त नीति सरकारसँग । अर्थतन्त्रमा मुद्राको मागको तुलनामा मुद्रा आपूर्ति बढी भएमा मुद्रास्फीति उत्पन्न हुनाका साथै बाह्य क्षेत्र स्थायित्वमा चुनौती आउँदछ । त्यस्तै, मागको तुलनामा आपूर्ति कम भएमा आर्थिक मन्दि तथा बेरोजगारी जस्ता समस्याहरू आउँदछन् । तसर्थ, अर्थतन्त्रको आवश्यकता अनुसार मात्र मुद्रा आपूर्ति हुनु आवश्यक छ ।

कुनै निश्चित उद्देश्य हासिल गर्न केन्द्रीय बैंकले मुद्रा तथा शाखको मात्रा, लागत तथा उपलब्धतामा (उपयोगमा) प्रभाव पार्न अपनाउने विधि नै मौद्रिक नीति हो । अर्थात्, केन्द्रीय बैंकले मुद्रा प्रदाय, व्याजदर तथा विनिमयदर सम्बन्धमा प्रयोग गर्ने नीति नै मौद्रिक नीति हो । मौद्रिक नीति आर्थिक स्थिरिकरणको महत्पूर्ण औजार हो । मौद्रिक नीति संकुचनकारी तथा विस्तारकारी हुन सक्दछ । अर्थव्यवस्थामा मुद्रा प्रदाय नियन्त्रण गर्न मौद्रिक अधिकारीले अपनाउने नीति संकुचनकारी मौद्रिक नीति हो । अर्थव्यवस्थामा मन्दि तथा बेरोजगारीको अवस्था उत्पन्न भई लगानीको मात्रा घट्दै गइरहेको अवस्थामा तरलता अभिवृद्धि गरी कर्जाको परिमाण बृद्धिको माध्यमबाट पूँजी लागत घटाउन केन्द्रीय बैंकले मुद्रा प्रदायमा विस्तार गर्न अपनाउने नीति विस्तारकारी मौद्रिक नीति हो । मौद्रिक नीति सहज वा कठोर कस्तो हुने भन्ने विषय मौद्रिक नीतिको अडान हो । कर्जा तथा व्याजदर यसका मुख्य सूचक हुन् । कस्तो मौद्रिक नीति अपनाउने भन्ने कुरा अर्थतन्त्रको संरचना, वित्तीय क्षेत्रको विकास, विनिमय दर प्रणालीको किसिम, आयात निर्यातको अवस्था, बाह्य क्षेत्रको अवस्था आदि कुरामा भर पर्दछ ।

मौद्रिक नीतिका उद्देश्यहरू

कुनै पनि मुलुकमा मौद्रिक नीतिका उद्देश्य कस्ता निर्धारण गर्ने भन्ने कुरा त्यस मुलुकको आर्थिक विकासको अवस्था, अर्थतन्त्रको स्वरूप तथा उपलब्ध श्रोत तथा साधनहरूमा भर पर्दछ । सामान्यतया मौद्रिक नीतिका उद्देश्यहरू निम्नानुसार रहन सक्दछन्:

मूल्य स्थायित्व (Price Stability)

सन् १९३० को आर्थिक मन्दिपछि मौद्रिक नीतिको उद्देश्य मूल्य स्थिरता हुनु पर्दछ भन्ने अवधारणाको विकास भएको हो । मूल्यको अस्थिरताबाट अर्थव्यवस्थामा अनिश्चितता उत्पन्न भई व्यापार चक्र आउँदछ । मूल्य अस्थिरताबाट समाजमा धन तथा सम्पत्तीको वितरणमा असमानता बढ्ने, बचत तथा लगानीको दरमा कमी आउने, उत्पादन, रोजगारी,

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आय आदिमा नकारात्मक असर पर्दछ । यसरी अर्थतन्त्रमा देखापर्ने समस्याहरू समाधान गर्न मौद्रिक नीतिको प्राथमिक उद्देश्य मूल्य स्थिरता हुनु पर्दछ भन्ने सम्बन्धमा धेरै अर्थशास्त्रीहरू सहमत भएको पाइन्छ । आर्थिक स्थायित्वको प्रमुख परिसूचक नै मूल्य स्थायित्व भएको कारण केन्द्रीय बैंकको ध्यान मूल्य स्थायित्व कायम गर्नमा रहेको हुन्छ ।

विनिमय दर स्थायित्व (Exchange Rate Stability)

अन्य देशका मुद्राहरूसँग कुनै मुलुकको मुद्राको मूल्यमा अनावश्यक उतार चढाव हुन नदिनु नै विनिमय दर स्थिरता हो । स्वर्णमानको प्रचलन रहँदा मौद्रिक नीतिको प्रमुख उद्देश्य विनिमय स्थिरता थियो । आधुनिक समयमा पनि विनिमय स्थिरता मौद्रिक नीतिको प्रमुख उद्देश्य रहेको छ । अन्तर्राष्ट्रिय व्यापार प्रोत्साहित गर्न, भुक्तानी सन्तुलन अनुकूल बनाउन, वैदेशिक लगानी बढाउन र विभिन्न मुलुकहरूसँगको सम्बन्ध सुमधुर बनाउन मौद्रिक नीतिको उद्देश्य विनिमय स्थिरता रहनु आवश्यक मानिन्छ ।

पूर्ण रोजगारी (Full employment)

सन् १९३६ मा अर्थशास्त्री किन्सको General Theory को प्रकासन पछि मौद्रिक नीतिको उद्देश्य पूर्ण रोजगारी प्राप्त गर्नु रहेको छ । प्रतिष्ठित अर्थशास्त्रीहरू दीर्घकालमा पूर्ण रोजगारी रहने कुरामा विश्वास राख्दथे । अल्पकालमा बेरोजगारीको अवस्था देखापरेतापनि दीर्घकालमा बेरोजगारी समस्या नरहने तर्क उनीहरूको रहेको थियो । तर व्यवहारमा पूर्णरोजगारीको अवस्था नरहने कारण मौद्रिक नीतिको उद्देश्य पूर्ण रोजगारी प्राप्त गर्नु हुनु पर्दछ भन्ने अवधारणा विकास भएको छ । पूर्ण रोजगारी त्यस्तो अवस्था हो जहाँ प्रचलित ज्यालादरमा काम गर्न इच्छुक र योग्य सबै व्यक्तिहरूलाई तुरुन्तै काम मिल्दछ । अर्को शब्दमा अनैच्छिक बेरोजगारीको अभावलाई पूर्ण रोजगारी भनिन्छ । अर्थव्यवस्थामा पूर्ण रोजगारी प्राप्त गर्न लचिलो मौद्रिक नीति अपनाउनु पर्ने कुरामा अर्थशास्त्रीहरूले जोड दिएका छन् । अतः अर्थव्यवस्थामा रोजगारीका अवसरहरू विस्तार गर्दै बेरोजगारी समस्या समाधान गर्नु मौद्रिक नीतिको उद्देश्य हो ।

आर्थिक वृद्धि (Economic Growth)

वास्तविक रूपमा भन्ने हो भने पूर्ण रोजगारीको स्तरमा आर्थिक वृद्धि गर्नु नै मौद्रिक नीतिको प्रमुख उद्देश्य हो । अर्थतन्त्रको दिगो वृद्धि विना पूर्ण रोजगारी प्राप्त हुन सक्दैन । आर्थिक वृद्धि बढेमा मात्र प्रतिव्यक्ति आय बढ्ने र त्यसबाट जनताको जीवनस्तरमा सुधार आउँदछ । विकासोन्मुख देशहरूमा मौद्रिक नीतिले आर्थिक स्थायित्वमा मात्र ध्यान नदिएर आर्थिक वृद्धिमा सहयोग गर्नेतर्फ पनि ध्यान दिनु आवश्यक छ । उपलब्ध साधन र श्रोत उत्पादनमूलक क्षेत्रहरूमा परिचालन गर्न सकेमा नै आर्थिक वृद्धिदर उच्च गर्न सहयोग पुग्दछ ।

वित्तीय स्थायित्व (Financial Stability)

मूल्य स्थायित्व कायम हुँदैमा वित्तीय स्थायित्व नरहने तथ्य सन् २००७-१० को विश्वव्यापी वित्तीय संकटले देखाएको छ । वित्तीय स्थायित्व हुन नसक्दा अर्थतन्त्र नराम्ररी

प्रभावित भई मन्दि तथा बेरोजगारी समस्या उत्पन्न हुने कारण हाल मौद्रिक नीतिको उद्देश्य वित्तीय स्थायित्व कायम गर्ने हुनु पर्नेमा जोड दिन थालिएको छ ।

नेपालको मौद्रिक नीति

नेपाल राष्ट्र बैंक ऐन, २०५८ को दफा ४ (क) अनुसार अर्थतन्त्रको दिगो विकासको निमित्त मूल्य र शोधनान्तर स्थिरता कायम गर्नको लागि आवश्यक मौद्रिक तथा विदेशी विनिमय नीति निर्माण गरी सोको व्यवस्थापन गर्ने पाल राष्ट्र बैंकको प्रमुख उद्देश्य रहेको छ । त्यसैगरी, ऐनको दफा ४४ मा बैंकलाई नेपाल अधिराज्यको मौद्रिक नीति निर्माण गर्ने, कार्यान्वयन गर्ने र गराउने पूर्ण अधिकार हुने छ भनी उल्लेख गरिएको छ । सोही ऐनको दफा ९४ मा बैंकले प्रत्येक वर्ष मौद्रिक नीति सम्बन्धी प्रतिवेदन सार्वजनिक जानकारीको लागि प्रकाशन गर्नु पर्ने व्यवस्था गरेको छ । त्यसरी प्रकाशन गरिने प्रतिवेदनमा बैंकले अधिल्लो आर्थिक वर्ष अवलम्बन तथा लागु गरेको मौद्रिक नीतिको सिंहावलोकन र मूल्यांकनका साथै आगामी वर्ष अवलम्बन तथा लागु गर्ने मौद्रिक नीतिको औचित्य र सोको विवेचना समावेश हुने व्यवस्था छ । नेपाल राष्ट्र बैंक ऐन, २०५८ को दफा ९४ मा व्यवस्था भए अनुसार आर्थिक वर्ष २०५९/६० देखि नेपाल राष्ट्र बैंकले मौद्रिक नीति तथा कार्यक्रम सार्वजनिक गरी आएको छ । यस आधारमा आर्थिक वर्ष २०७३/७४ का लागि जारी गरिएको मौद्रिक नीति पन्ध्रौँ मौद्रिक नीति हो ।

मौद्रिक नीतिको ढाँचा

मौद्रिक नीतिको ढाँचा अन्तर्गत मौद्रिक उपकरण, संचालन लक्ष्य, अन्तरिम लक्ष्य (रणनीतिक लक्ष्य) र अन्तिम लक्ष्य पर्दछन् । मौद्रिक नीतिका उपकरण अन्तर्गत बैंक दर र पुनरकर्जादर, अनिवार्य नगद मौज्जात अनुपात, खुला बजार कारोवार, वैधानिक तरलता अनुपात, स्थायी तरलता सुविधा रहेका छन् । मौद्रिक नीतिको सञ्चालन लक्ष्यमा समकक्षीहरूसँग रहेको अतिरिक्त रिजर्व (भ्रमभक्तक च्भक्तभक्तभक्त) रहेको छ । त्यस्तै, मौद्रिक नीतिको अन्तरिम लक्ष्य (रणनीतिक लक्ष्य) विस्तृत मुद्रा प्रदाय रहेको छ । अन्तिम उद्देश्य(लक्ष्य) अन्तर्गत मूल्य स्थायित्व, शोधनान्तर बचत (बाह्य क्षेत्र स्थायित्व), वित्तीय स्थायित्व र आर्थिक वृद्धि रहेका छन् । नेपालमा स्थिर विनिमय दर प्रणालीलाई मौद्रिक नीतिको अंकुश (Nominal Anchor) मानिएको छ । नेपालको मौद्रिक नीतिको ढाँचा तल दिइएको छ ।

तालिका १: नेपालको मौद्रिक नीतिको ढाँचा

उपकरणहरू →	सञ्चालन लक्ष्य →	अन्तरिम लक्ष्य →	अन्तिम लक्ष्य
<ul style="list-style-type: none"> • बैंकदर र पुनरकर्जादर • अनिवार्य नगद मौज्जात अनुपात • खुला बजार कारोवार • वैधानिक तरलता अनुपात 	<ul style="list-style-type: none"> • समकक्षीसँग रहेको अधिक तरलता (क, ख र ग बर्गका संस्थाहरूसँग रहेको अधिक तरलता) 	<ul style="list-style-type: none"> • विस्तृत मुद्रा प्रदाय (M2) 	<ul style="list-style-type: none"> • मूल्य स्थायित्व • बाह्य क्षेत्र स्थायित्व • वित्तीय स्थायित्व • आर्थिक वृद्धि
कार्यान्वयन →		← निर्माण	

मौद्रिक नीतिका उद्देश्य/अन्तिम लक्ष्य

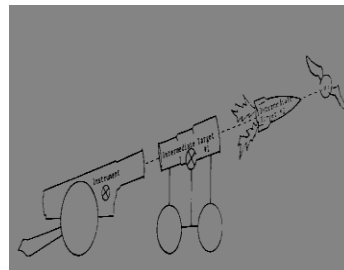
विश्वका अधिकांस मुलुकहरु सन् १९९० पछि मौद्रिक नीतिको एकल उद्देश्य हासिल गर्न प्रयत्नशील रहेतापनि नेपालमा हालसम्म मौद्रिक नीतिका एकभन्दा बढी उद्देश्यहरु रहेका छन् । मौद्रिक नीति सार्वजनिक गर्न थालेयताका मौद्रिक नीतिका उद्देश्यहरु निम्न अनुसार रहेका छन्:

- **मूल्य स्थायित्व कायम गर्ने:** नेपालको मौद्रिक नीतिको प्राथमिक उद्देश्य मूल्य स्थायित्व कायम गर्ने रहेको छ । मुद्रास्फीतिको दर मौद्रिक नीति सार्वजनिक गर्दा तोक्ने र त्यसरी तोकिएको लक्ष्य प्राप्त गर्न मौद्रिक नीतिका विभिन्न उपकरणहरु प्रयोग हुने गर्दछन् । मुद्रा प्रदायलाई वान्छित स्तरमा राखी माग प्रेरित मुद्रास्फीति नियन्त्रण गर्न मौद्रिक नीतिको ध्यान रहन्छ । आर्थिक वर्ष २०७३/७४ को लागि मूल्य स्थायित्वको लक्ष्य ७.५ प्रतिशत रहेको छ ।
- **बाह्य क्षेत्र स्थायित्व वा शोधनान्तर बचत कायम गर्ने:** बाह्य क्षेत्र स्थायित्वको प्रमुख परिसूचक भुक्तानी संतुलनको अवस्था हो । सकेसम्म शोधनान्तर बचतमा रहनु र हुन नसकेका न्यूनस्तरको घाटा हुनु आवश्यक छ । त्यसैले, शोधनान्तर बचत गर्ने लक्ष्यलाई मौद्रिक नीतिमा उल्लेख गरिएको हुन्छ । नेपाल राष्ट्र बैंकले मौद्रिक नीति सार्वजनिक गर्न थालेयता शोधनान्तर बचतको लक्ष्य निर्धारण गर्ने गरेकोमा केही वर्षयता शोधनान्तर बचतको लक्ष्य नतोकी विदेशी विनिमयको सञ्चितिको लक्ष्य निर्धारण गर्न थालेको छ । हाल मौद्रिक नीतिले आठ महिना बराबरीको वस्तु तथा सेवाको आयात धान्न पुग्ने विदेशी विनिमय सञ्चिति कायम राख्ने लक्ष्य लिएको छ ।
- **वित्तीय स्थायित्व कायम गर्ने:** मूल्य स्थायित्व कायम गर्दैमा समष्टिगत स्थायित्व कायम हुन नसक्ने देखिएकोले सन् २००७ को वित्तीय संकटपछि वित्तीय स्थायित्व पनि मौद्रिक नीतिको उद्देश्य हुनु पर्दछ भन्ने अवधारणाको विकास भएको छ । वित्तीय क्षेत्रमा देखा पर्ने संकटबाट अर्थतन्त्रका अन्य क्षेत्र नराम्ररी प्रभावित हुने कारण वित्तीय स्थायित्व अनिवार्य शर्त रहन गएको हो । वित्तीय अस्थायित्वको अवस्था नै वित्तीय स्थायित्व हो । नेपालको मौद्रिक नीतिले पनि वित्तीय स्थायित्व कायम गर्ने कुरालाई मौद्रिक नीतिको लक्ष्यको रूपमा तोकेको छ । मौद्रिक नीतिको प्रसारण संयन्त्र बैंक तथा वित्तीय संस्थाको स्वास्थ्यमा भर पर्ने कारण मौद्रिक नीति प्रभावकारी हुन पनि वित्तीय स्थायित्व आवश्यक छ ।
- **उच्च आर्थिक वृद्धि हासिल गर्न सहयोग गर्ने:** सरकारले तोकेको आर्थिक वृद्धिको लक्ष्य हासिल गर्न सहयोग गर्नु पनि मौद्रिक नीतिको अर्को उद्देश्य रहेको छ । आर्थिक वृद्धिको सरकारी लक्ष्य पुरा गर्न आवश्यक तरलता अर्थतन्त्रमा उपलब्ध गराएर मौद्रिक नीतिले आर्थिक वृद्धिमा सहयोग गर्दछ । कर्जा उपलब्धताको माध्यमबाट वित्तीय क्षेत्रले आर्थिक वृद्धिमा योगदान गर्दछ । त्यसको साथै मूल्य स्थायित्व कायम गर्ने, बैंक तथा वित्तीय संस्थाहरुका शाखा ग्रामीण स्तरसम्म विस्तार गर्ने, वित्तीय स्थायित्व कायम गर्ने र उत्पादनमूलक क्षेत्रमा कर्जा विस्तार गर्ने आदि पक्षहरुबाट पनि आर्थिक वृद्धिमा सहयोग पुग्दछ ।

मौद्रिक नीतिका सञ्चालन तथा अन्तरिम लक्ष्य

लक्ष्य भनेको नीतिगत कदमलाई मार्गदर्शन गराउने माध्यम हो । मौद्रिक नीतिको लक्ष्यलाई सञ्चालन लक्ष्य र अन्तरिम लक्ष्यमा विभाजन गर्न सकिन्छ । उपकरण तथा अन्तिम लक्ष्य(

उद्देश्य) बीचमा ीप गराउनका लागि सञ्चालन तथा अन्तरिम लक्ष्य आवश्यक पर्दछन् । त्यसैगरी, अन्तिम लक्ष्य भन्दा चाँडो सञ्चालन लक्ष्य तथा अन्तरिम लक्ष्यमा प्रभाव पर्ने हुँदा नीतिगत निर्णयको चाँडो अनुगमन/मूल्यांकन गर्न पनि सहयोग पुग्दछ । उपकरण र अन्तरिम लक्ष्य बीचमा पुलको काम सञ्चालन लक्ष्यले गर्दछ । नेपालमा समकक्षीको अधिक तरलतालाई मौद्रिक नीतिको सञ्चालन लक्ष्यको रूपमा लिइएको छ । त्यसैगरी, सञ्चालन लक्ष्य र अन्तिम लक्ष्य बीचमा Link गर्ने काम अन्तरिम लक्ष्यले गर्दछ । यसलाई रणनीतिक लक्ष्य पनि भन्ने गरिन्छ । स्थिर विनिमय दर प्रणाली मौद्रिक नीतिको अंकुश (Nominal Anchor) रहेको सन्दर्भमा विस्तृत मुद्रा प्रदायलाई मौद्रिक नीतिको अन्तरिम /रणनीतिक लक्ष्यको रूपमा लिइएको छ । चयन गरिएको लक्ष्य नीतिगत उपायहरूबाट चाँडै प्रभावित हुने तथा गैर नीतिगत उपायहरूबाट न्यूनतम प्रभावित हुनु आवश्यक छ ।



मौद्रिक नीतिका उपकरण

मौद्रिक नीतिका उद्देश्यहरू हासिल गर्न उपकरणहरू प्रयोगमा ल्याइन्छन् । मौद्रिक नीतिका उपकरणहरू प्रत्यक्ष तथा अप्रत्यक्ष हुन सक्दछन् । अप्रत्यक्ष उपकरणहरूमा बैंक दर, अनिवार्य नगद मौज्जात अनुपात, खुला बजार कारोवार आदि पर्दछन् भने प्रत्यक्ष उपकरणहरूमा मार्जिन दर निर्धारण, उपभोक्ता शाख नियमन, कर्जा सीमा, वैधानिक तरलता अनुपात, व्याजदर निर्धारण, निर्देशित कर्जा आदि पर्दछन् । नेपाल राष्ट्र बैंकले स्थापना कालदेखि हालसम्म मौद्रिक नीतिका प्रत्यक्ष तथा अप्रत्यक्ष उपकरणहरूको प्रयोग गरी आएको छ । नेपाल राष्ट्र बैंकले वि.सं. २०२३ साल देखि मौद्रिक नीतिका विभिन्न उपकरणहरूको प्रयोग गर्न थालेको हो । नेपालमा हालसम्म प्रयोगमा ल्याएका मौद्रिक नीतिका उपकरणहरू निम्नानुसार रहेका छन् ।

• बैंक दर/ पुनरकर्जा दर (Bank rate/Refinance Rate)

नेपाल राष्ट्र बैंकले २०२३ देखि बैंकदर नीतिको प्रयोग गर्न थालेको हो । अर्थतन्त्रको आवश्यकताको आधारमा बैंकदर समायोजन गर्ने गरिएको छ । अर्थतन्त्रमा तरलता बृद्धि गर्नु पर्ने अवस्थामा बैंक दर घटाइन्छ भने तरलता प्रशोचन गर्नु पर्ने अवस्थामा बैंक दर बढाइन्छ । हाल बैंकदर ७ प्रतिशत रहेको छ । साथै, अर्थतन्त्रका तोकिएका क्षेत्रहरूको प्रवर्धन गर्न केन्द्रीय बैंकले समकक्षीहरूलाई पुनरकर्जा दिने गरेको छ र यस्तो पुनरकर्जादर पनि आवश्यकता अनुसार समायोजन भई आएको छ । यस्तो पुनरकर्जा साधारण तथा विशेष प्रकारको हुन सक्दछ । हाल साधारण पुनरकर्जादर ४ प्रतिशत तथा विशेष पुनरकर्जादर ९ प्रतिशत रहेको छ ।

- **अनिवार्य नगद मौज्जात अनुपात (Cash Reserve Ratio)**
नेपाल राष्ट्र बैंकले २०२३ असोज १ गतेदेखि अनिवार्य नगद मौज्जातको अनुपात तोक्न थालेको हो । बैंक तथा वित्तीय संस्थाहरूले कुल निक्षेपको निश्चित प्रतिशत नेपाल राष्ट्र बैंकमा राख्नु पर्ने व्यवस्था नै अनिवार्य नगद मौज्जात हो । विभिन्न समयमा अनिवार्य नगद मौज्जात अनुपातमा परिवर्तन भई आएको छ । नेपाल राष्ट्र बैंकले निर्धारण गरेको यस्तो अनुपातबाट मुद्रा प्रदाय व्यवस्थापनमा सहयोग पुग्दछ । हाल वाणिज्य बैंकहरूले नेपाल राष्ट्र बैंकमा जम्मा गर्नु पर्ने अनिवार्य नगद मौज्जात अनुपात कुल स्वदेशी निक्षेपको ६ प्रतिशत रहेको छ ।
- **व्याज दर र मार्जिन दर (Interest rate and Margin Rate)**
नेपाल राष्ट्र बैंकले २०२३ भाद्रदेखि वचत र मुद्दती निक्षेपमा दिइने व्याजदर तोक्न थालेको हो । विभिन्न समयमा व्याजदर समायोजन गर्ने काम नेपाल राष्ट्र बैंकले गरेतापनि २०४६ भाद्रपछि व्याज दर निर्धारण गर्ने स्वतन्त्रता वाणिज्य बैंकहरूलाई प्रदान गरिएको छ । त्यसैगरी, वि.सं. २०२३ असोजबाट कर्जा नियन्त्रण गर्न मार्जिन दर तोक्न थालेकोमा वि.सं. २०४९ देखि मार्जिन दर निर्धारण गर्ने स्वतन्त्रता वाणिज्य बैंकहरूलाई नै प्रदान गरिएको छ । हाल “क” वर्गका संस्थाको हकमा व्याजदर अन्तर ५ प्रतिशत भित्र रहनु पर्ने व्यवस्था रहेको छ ।
- **खुला बजार कारोवार (Open Market Operations)**
नेपाल राष्ट्र बैंकले वि.सं. २०४६ देखि अप्रत्यक्ष मौद्रिक उपकरणको रूपमा खुला बजार कारोवारलाई व्यापक रूपमा प्रयोग गर्न थालेको हो । तरलता व्यवस्थापनमा यो उपकरणको बढी प्रयोग हुने गरेको छ । खुला बजार कारोवार अर्न्तगत हाल तरलता प्रवाह गर्दा खरिद वोलकवोल तथा रिपो वोलकवोल र तरलता प्रशोचन गर्दा विक्री वोलकवोल तथा रिभर्स रिपो वोलकवोलको प्रयोग भइरहेको छ । अल्पकालीन तरलता व्यवस्थापनमा रिपो तथा रिभर्स रिपो वोलकवोल तथा मध्यकालीन तरलता व्यवस्थापनमा विक्री तथा खरीद वोलकवोलको प्रयोग हुने गरेको छ । तरलता अनुगमन तथा प्रक्षेपण संरचनाले दिएको संकेतको आधारमा खुला बजार कारोवार हुने व्यवस्था रहेको छ । साथै, २०७१ देखि निक्षेप वोलकवोलको माध्यमबाट पनि बजारमा रहेको अधिक तरलता प्रशोचन गर्न थालिएको छ । २०७३ जेष्ठबाट अधिक तरलता व्यवस्थापन गर्न नेपाल राष्ट्र बैंकले नेपाल राष्ट्र बैंक ऋणपत्र पनि ल्याएको छ । विगत केही वर्षयता बैंक तथा वित्तीय संस्थाहरूसँग अधिक तरलता रहँदै आएको कारण व्याजदर न्यून स्तरमा रहन गएको छ ।
- **कर्जा सीमा र वैधानिक तरलता अनुपात (Credit limit and Statutory liquidity Ratio)** वि.सं. २०३१ देखि निजी क्षेत्रमा जाने कर्जाको सीमा निर्धारण गरियो र वैधानिक तरलता अनुपात (SLR) ३२ प्रतिशत तोकियो । आर्थिक वर्ष २०४५/४६ देखि कर्जा सीमा निर्धारण व्यवस्था हटाइयो । वि.सं. २०३१ बाट लागु भएको वैधानिक तरलता अनुपात (SLR) वि.सं. २०५० देखि हटाइयो । तर आर्थिक वर्ष २०६६/६७ को मौद्रिक नीतिले वैधानिक तरलता अनुपातको प्रावधान फेरी शुरु गरेको छ । हाल “क” वर्गका संस्थाहरूका लागि वैधानिक तरलता अनुपात १२ प्रतिशत रहेको छ ।

- **निर्देशित कर्जा कार्यक्रम** (Directed Credit Programme) साना क्षेत्र कर्जा, प्राथमिकता प्राप्त क्षेत्र कर्जा कार्यक्रम, उत्पादनशील कर्जा कार्यक्रम, विपन्न वर्ग कर्जा आदि निर्देशित कर्जा कार्यक्रम हुन् । तर हाल निर्देशित कर्जा कार्यक्रम अन्तर्गत विपन्न कर्जा कार्यक्रम र उत्पादनशील कर्जा कार्यक्रम मात्र रहेका छन् । विपन्न कर्जा कार्यक्रम अन्तर्गत “क” वर्गका संस्थाले असुल हुन वाँकी कर्जाको ५.० प्रतिशत, ख वर्गका संस्थाले ४.५ प्रतिशत र ग वर्गका संस्थाले ४ प्रतिशत अनिवार्य रुपमा विपन्न वर्गमा लगानी गर्नुपर्ने व्यवस्था छ । त्यस्तै, उत्पादनशील कर्जा कार्यक्रम अन्तर्गत क वर्गका संस्थाले २०७४ असार मसान्तसम्ममा कुल कर्जाको २० प्रतिशत अनिवार्य रुपमा विपन्न वर्गमा कर्जा प्रवाह गर्नुपर्ने व्यवस्था रहेको छ । त्यसमध्येमा न्यूनतम १५ प्रतिशत कृषि तथा उर्जा क्षेत्रमा कर्जा प्रवाह गर्नुपर्ने व्यवस्था रहेको छ । त्यस्तै, ख र ग वर्गका संस्थाहरूले पनि क्रमशः १५ प्रतिशत र १० प्रतिशत उत्पादनशील क्षेत्रमा कर्जा प्रवाह गर्नु पर्ने व्यवस्था रहेको छ ।

यसरी नेपालमा वित्तीय उदारीकरण शुरु हुनु भन्दा अगाडी मौद्रिक नीतिका प्रत्यक्ष उपकरणहरूको बढी प्रयोग हुने गरेकोमा उदारीकरणको प्रारम्भसँगै अप्रत्यक्ष उपकरणहरूको प्रयोग भइरहेको छ । नेपालमा हाल प्रयोगमा रहेका मौद्रिक नीतिका उपकरणहरूमा बैंकदर, अनिवार्य नगद मौज्दात अनुपात, खुला बजार कारोवार, वैधानिक तरलता अनुपात, स्थायी तरलता सुविधा रहेका छन् । तलको तालिकामा नीतिगत दरहरूको अवस्था देखाइएको छ ।

तालिका २: नीतिगत दरहरूको अवस्था

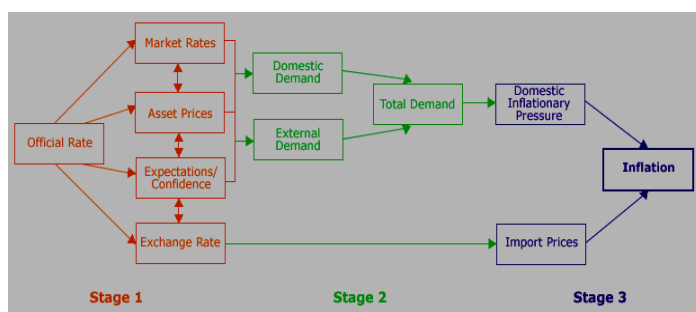
Particular	2005	2006	2007	2008	2009	2010	2011	2013	2014	2015
CRR	5.0	5.0	5.0	5.0	5.5	5.5	5.5	5.0	5-6	4-6
Bank Rate	5.5	6.25	6.25	6.25	6.5	6.5	7.0	8.0	8.0	7
Refinance Rates Against Loans to:										
Sick Industries	2.0	1.5	1.5	1.5	1.5	1.5	1.5	1.0	1.0	1.0
Rural Development Banks	4.5	3.0	3.5	3.5	3.5	2.0	2.0	1.0	1.0	1.0
Export Credit in Domestic Currency	4.5	3.0	3.5	3.5	2.5	3.5	3.5	1.0	1.0	1.0
Export Credit in Foreign Currency	2.0	2.0	3.25	3.25	3.25	LIB OR+ 0.25	LIB OR+ 0.25	LIB OR+ 0.25	LIB OR+ 0.25	LIB OR+ 0.25
Standing Liquidity Facility (SLF) Penal Rate	-	1.5	1.5	1.5	2.0	3.0	3.0	-	-	-

श्रोत: नेपाल राष्ट्र बैंक

(नोट: आर्थिक वर्ष २०६९/७० देखि बैंक दरमा नै स्थायी तरलता सुविधा उपलब्ध हुने गरेको)

मौद्रिक नीतिको प्रसारण संयन्त्र

मौद्रिक नीतिको प्रसारण संयन्त्रले मौद्रिक नीतिले कसरी वास्तविक क्षेत्रका चरहरूमा प्रभाव पार्दछ त्यसबारेमा बताउँदछ । मौद्रिक नीतिको सञ्चालन मूल्य स्थायित्व कायम गरी उत्पादन बढाउन प्रयोगमा ल्याइन्छ । अतः मौद्रिक नीतिको प्रसारण संयन्त्रले नीतिगत दरमा परिवर्तन हुँदा कसरी उत्पादन तथा मूल्य प्रभावित हुन्छ त्यस बारेमा बताउँदछ ।



नीतगत दरमा भएको परिवर्तनले मूल्यमा प्रभाव पार्ने विभिन्न माध्यमहरू रहेका हुन्छन् । मौद्रिक नीतिका प्रमुख प्रसारण माध्यम अन्तर्गत व्याजदर माध्यम, सम्पत्तिको मूल्य माध्यम, कर्जा उपलब्धता माध्यम, विनिमयदर माध्यम, आकांक्षा माध्यम रहेका छन् ।

व्याज दर माध्यम किसिन्यन अवधारण हो । अर्थशास्त्री किन्सले व्याजदरलाई मौद्रिक नीतिको महत्वपूर्ण परिसूचक मानेका छन् । मुद्रा प्रदाय विस्तार हुँदा व्याजदर घट्ने, लगानी बढ्ने, उत्पादन तथा रोजगारी बढ्ने, समग्र माग बढ्ने र मूल्य बढ्ने हुन्छ । तर नेपाल जस्ता विकासोन्मुख मुलुकहरूमा जहाँ वित्तीय बजारको राम्रो विकास भएको हुँदैन त्यस्तो बजारमा यो संयन्त्रले राम्रो काम गर्न सक्दैन ।

सम्पत्तिको मूल्य अर्को महत्वपूर्ण माध्यम हो । यस अवधारणा अनुसार मुद्रा प्रदाय बढ्दा व्याजदर घटन गई सम्पत्तिको मूल्य बढ्दछ । सम्पत्तिको मूल्य बढेपछि आय बढ्ने, माग बढ्ने भई मूल्य बढ्दछ । कर्जा उपलब्धता माध्यमका अनुसार मुद्रा प्रदाय बढ्दा कर्जा उपलब्धता बढ्ने, लगानी विस्तार हुने, आय तथा समग्र माग बढ्ने भई मूल्यमा वृद्धि हुने अवस्था आउँदछ । लचिलो विनिमयदर प्रणाली अवलम्बन भएका मुलुकहरूमा मुद्रा प्रदाय घट्दा व्याजदर बढ्ने, विदेशी पूँजी आप्रवाह बढ्ने, स्वदेशी मुद्राको अधिमूल्यन हुने भई खुद निर्यात घट्ने तथा समग्र मागमा कमी आउने अवस्था सिर्जना हुन्छ । आकांक्षा माध्यम मूलतः केन्द्रीय बैंकको नीति, अर्थतन्त्रको अवस्था सम्बन्धमा सर्वसाधारणको आकांक्षाका माध्यमबाट अर्थतन्त्रमा पर्ने प्रभाव हो ।

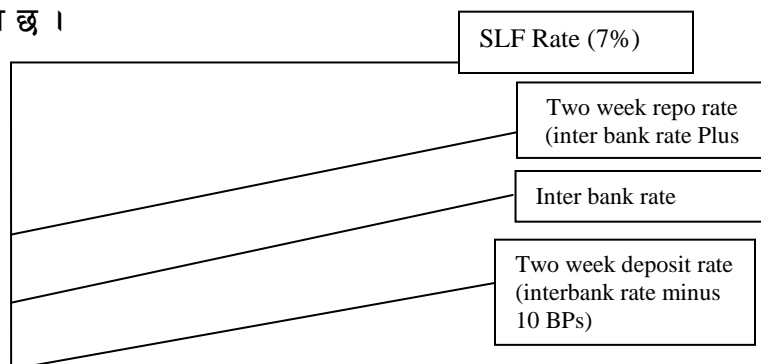
व्याजदर करिडोर (Interest Rate Corridor)

अल्पकालीन व्याजदरमा हुने उतार चढावलाई न्यूनिकरण गर्न र मौद्रिक नीति व्यवस्थापनलाई आधुनिकीकरण गर्न नेपाल राष्ट्र बैंकले आर्थिक वर्ष २०७३/७४ को मौद्रिक नीति मार्फत घोषणा गरेको व्याजदर करिडोर २०७३ साउन २६ देखि लागु भएको छ । व्याजदर करिडोरका माध्यमबाट तरलता व्यवस्थापनमा सहयोग पुग्ने, अल्पकालीन व्याजदरमा स्थायित्व आउने, अल्पकालीन तथा दीर्घकालीन व्याजदरमा समानता आउने, मौद्रिक व्यवस्थापनमा सहयोग पुग्ने जस्ता फाइदाहरू प्राप्त हुने गर्दछन् ।

यो अवधारणा Bank of England, Bank of Canada, Bank of Japan, European Central Bank, Reserve Bank of Australia, Central Bank of Newzealand, Central

Bank of Sweden Bank (Riskbank), Reserve Bank of India, Bank of Thailand, People's Bank of China आदिमा प्रचलनमा रहेको छ ।

नेपालमा स्थायी तरलता सुविधाको व्याजदरले करिडोरको माथिल्लो सीमा (Upper Bound) र निक्षेप संकलनको दरले तल्लो सीमा (Lower Bound) को काम गर्दछ । त्यस बीचमा अन्तर बैंक व्याजदर र नीतिगत दरको रूपमा रहेको रिपोदर रहने व्यवस्था छ । हाल ७ प्रतिशत रहेको स्थायी तरलता सुविधाको दर करिडोरको माथिल्लो सीमा हो । तल्लो सीमाको रूपमा दुई हप्ते निक्षेप संकलनको दर (क वर्गका संस्थाको अन्तर बैंकदरमा १० आधार बिन्दु घटाई आउने दर) रहेको छ । नीतिगत दरको रूपमा रहको रिपोदर अन्तर बैंक दरमा २०० आधार बिन्दु जोडेर निकालिन्छ । तलको रेखा चित्रमा नेपालको व्याजदर करिडोरको अवस्था देखाइएको छ ।



भारतमा Marginal Standing Facility Rate जुन ७ प्रतिशत रहेको छ त्यसले करिडोरको माथिल्लो सीमा र रिभर्स रिपोदर जुन ६ प्रतिशत रहेको छ त्यसले करिडोरको तल्लो सीमाको काम गरेको छ । रिपोदर नीतिगत दर हो त्यसमा ०.५ प्रतिशत थपेर स्थायी तरलता सुविधाको दर र ०.५ प्रतिशत घटाएर रिभर्स रिपोदर निर्धारण हुने गरेको छ ।

नेपालमा मौद्रिक नीति कार्यान्वयनका चुनौतीहरू

- **बहु उद्देश्य(उचित मौद्रिक लक्ष्यको चयनमा समस्या):** मौद्रिक नीतिका एक भन्दा बढी उद्देश्यहरू रहँदा उद्देश्यहरू बीचमा अन्तरविरोध उत्पन्न हुने अवस्था आउँदछ । उदाहरणको लागि मूल्य स्थायित्व कायम गर्न मुद्रा प्रदाय नियन्त्रण हुनु आवश्यक छ तर यसो गर्दा उच्च आर्थिक वृद्धि दर हासिल गर्ने लक्ष्यमा नकारात्मक असर पर्दछ ।
- **कमजोर वित्तीय मध्यस्थता कार्य:** वित्तीय संस्थाहरूको ग्रामीण क्षेत्रसम्म पहुँचको कमीले वित्तीय मध्यस्थता कार्य संगठित तथा प्रभावकारी हुन सकेको छैन ।
- **स्थिर विनिमय दर:** भारुसँग नेरुको विनिमय दर स्थिर रहनु मौद्रिक नीति प्रभावकारी हुन नसक्नुको अर्को कारण हो । स्थिर विनिमय दर प्रणालीमा मौद्रिक नीति प्रभावकारी हुन सक्दैन ।
- **मुद्रा प्रतिस्थापन:** भारुबाट नेपाली मुद्रा प्रतिस्थापनको दर बढ्दो छ । त्यस्तो अवस्थामा मुद्रा माग प्रक्षेपण गरी मुद्रा आपूर्ति व्यवस्थापन गर्नमा समस्या आउँदछ र नेरु प्रतिको विश्वासनीयता बढाउन समस्या पर्दछ ।

- **उपकरणहरूको सीमितता:** वैकदर, खुला बजार कारोवार, CRR र SLR आदि मौद्रिक नीतिका उपकरण हुन् । खुला बजार कारोवारको दोश्रो बजारमा ट्रेजरी बिल्समात्र छ । हालैका वर्षहरूमा तरलता पर्याप्त भएको अवस्थामा पनि तरलता व्यवस्थापन गर्न नसकिएको तथ्यले पनि उपकरणहरूको सीमिततालाई ईकित गर्दछ ।
- **मौद्रिक नीतिको प्रसारण संयन्त्र प्रभावकारी नहुनु:** मौद्रिक नीति प्रभावकारी हुन मौद्रिक नीतिको प्रसारण संयन्त्र प्रभावकारी हुनु आवश्यक छ । तर नेपालमा नीतिगत दरमा परिमार्जन हुँदा पनि त्यसको प्रभाव सही रूपमा वास्तविक क्षेत्रमा पर्न नसकेको कारण यस्तो संयन्त्र प्रभावकारी हुन नसकेको देखिन्छ । बैंकिङ प्रणाली दरिलो नहुँदा यस्तो अवस्था आएको हो ।
- **Delayed Impact:** मौद्रिक नीतिका Recognition lag, Decision lag तथा Implementation lag जस्ता समस्याहरू हुन्छन् । अन्तराल प्रभाव बढी भएमा मौद्रिक नीतिको प्रभावकारीता कम हुन्छ ।
- **मुद्रा तथा पूँजी बजारको अविकसित अवस्था:** नेपालमा मुद्रा तथा पूँजी बजार अविकसित अवस्थामा रहेको कारण पनि मौद्रिक नीति प्रभावकारी हुन सकेको छैन ।
- **बढ्दो विश्वव्यापी एकीकरण:** नेपाल विश्वव्यापी रूपमा एकीकृत हुँदै गएको कारण पनि अन्य मुलुकहरूमा हुने घटना तथा परिघटनाहरूबाट मौद्रिक नीति प्रभावित हुने र त्यसबाट मौद्रिक नीतिको प्रभावकारीतामा असर पर्ने गरेको छ ।
- **Parallel Banking:** बैंक तथा वित्तीय संस्था बाहेक नेपालमा अन्य संस्थाहरूबाट पनि बैंकिङ कारोवार भइरहेको भएतापनि तिनको प्रभावकारी नियमन गर्ने संयन्त्र छैन । यसरी छाँया बैंकिङ बढ्दै जानु पनि मौद्रिक नीति कार्यान्वयनको अर्को चुनौती हो ।

निष्कर्ष

समष्टिगत आर्थिक स्थायित्व कायम गर्ने महत्वपूर्ण औजार मौद्रिक नीति हो । समग्र माग व्यवस्थापन गरी मूल्य स्थायित्व कायम गर्नु नै मौद्रिक नीतिको प्राथमिक लक्ष्य हो । समष्टिगत आर्थिक स्थायित्व कायम हुन नसकेमा अर्थतन्त्रमा नकारात्मक प्रभाव पर्ने कारण मौद्रिक तथा वित्त नीति बीचमा उचित समन्वय गरी मूल्य स्थायित्व कायम गर्नु आवश्यक छ । मौद्रिक नीतिलाई प्रभावकारी बनाउन हासिल गर्न सकिने लक्ष्य निर्धारण गर्ने, केन्द्रीय बैंकलाई बढी स्वायत्तता प्रदान गर्ने, मौद्रिक प्रसारण संयन्त्र प्रभावकारी बनाउने, प्रतिस्पर्धी तथा दक्ष वित्तीय प्रणालीको विकास गर्ने, मौद्रिक तथा वित्त नीतिबीच उचित समन्वय गर्ने, पर्याप्त मौद्रिक उपकरणको व्यवस्था गर्ने आदि पक्षहरूमा ध्यान दिनु आवश्यक छ ।

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Damak Multiple Campus believes in true and authentic knowledge emerged from the findings of research work. This has motivated to publish research articles through 'Damak Campus Journal' in half yearly issues in initiation with Publication Cell since 2011. This is the fifth volume encompassing multidisciplinary articles written by the faculty researchers and other experts. It is anticipated to be a brick in research work for innovation.