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Journal of APF Command and Staff College

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### Aim and Scope

Journal of APF Command and Staff College (JAPFCSC) is an annual peer-reviewed journal launched by APF Command and Staff College, Kathmandu, Nepal since 2018. Journal is one of the most-important sources of producing and disseminating the knowledge to the related subjects. In order to be scientific, knowledge must be systematic, methodical, general, and critical. The journal will be an impetus for carrying recent theoretical, conceptual, methodological and new paradigms of security, development, and peace studies. The journal welcomes original, academic and research from multi and interdisciplinary perspectives. Professors, academics, researchers, policy makers and students may see learning opportunity and will be highly benefited from the research based articles included in the journal.

### Call for Paper

Every year there will be announcement of call for paper and the last submission date of articles will be mentioned in call for paper. After receiving the evaluation report, it will be sent to the author for its revision. Finally the author will submit his/her paper to the research committee. The editor-in-chief has right to accept or reject the articles for publication. The author has to acknowledge to the organization or institution if the research has been financially supported by them. The authors receive the copies of the issue in which their article appears. The audiences are suggested to go through [www.nepjol.info](http://www.nepjol.info) or college website for reading the papers published in this journal.

It aims to identify the areas of research which are as follows: national and international, security, national integration, national and international law, peace, development, planning, foreign policy, ecology, environment and climate change along with global commons (but not limited to).

The research article should have more than 5,000 words; 3,000 words for book review and research notes; and 250 words for abstract including five keywords. The research work should be based on global research methodology. After receiving the research papers, it will be first consulted by the editor-in-chief and then it will be sent to the expert(s) for evaluating the paper. The authors will not be charged any fee for publishing their articles. The editorial board reserves right to edit, moderate or reject the article submitted

### Author Guidelines

Manuscripts should be typed double-space on A4 sized paper with a 4cm margin on all four sides. The author should underline nothing except words which are to be italicized. Notes and references should be typed double-space on separate pages which should be included at the end of the articles. The researcher will be required to use parentheses or author date system or in text citation. In case, if it is required, the text should refer to notes numbered consecutively throughout the article using raised numbers which should be mentioned at the end of the text before references. That means footnotes must be avoided. The citations and references should be based on the Publication Manual of the American Psychological Association, Seventh Edition, 2019, Washington, DC. APA method. For example (The mentioned below are pseudonyms) in text citation, there should be: (Egger, 2013, p.17); Egger (2013) and at the end of sentences (p.15). Indentation and Ellipses must be followed: ...one paragraph of sentences in single space at the center with italic... (Published date and page no.). The researchers are also suggested to used ampersand (&) in text citation and in reference in between the two or more authors.

The references will be started from the surname of the author e.g. Thompson, L . (2013). *Disaster Management*, London: Sage Publication. In the case of two authors, e.g. Smith, R., & Basnet, R. (2005). *Tourism Profile of Nepal*, Kathmandu: Mandala Book Point. If there are more than two authors, e.g. Egger, M., Thapa, N., & Ranbhat, K. (2013), *National Security*, Kathmandu: Sunaulo Publications. If it has to be cited again, there will be Egger et al. (2013, p. 21). In the case of book chapter published in edited book, there will be Fisher, X. (1980) Life in the land without wheels. In Ortner, M. (Ed.) *Fluid Boundary* (pp.3-17), Bangkok: Lotus Publishers. In the case of edited book , e.g. Lamichhane, S., Rawal, L., & Spenser, D. (Eds.) (2003). *Conflict Transformation*, Lalitpur: Heritage Publication. In the case of research article published in the journal, there will be Tarlow, C. (1991). Tourism, safety and security. *The GAZE Journal of Tourism and Hospitality*, 4(1), 7-28. If the text has been published by the organization, such as. Tourism Board (2009). *Natural and Cultural Heritage*, Kathmandu: Tourism Board. In the case of on publish thesis, Rawal, N. N.(2012). A study of Cultural Heritage Tourism in Bhaktapur, Nepal, An Unpublished Ph.D. Thesis Submitted to the Nabil University, Kathmandu, Nepal. In case, the same author has published three articles in the following year, there should be the format of Rawal (1997a)..., Rawal (1997b)..., and Rawal (1997c)... Entries in the references should be in alphabetical and chronological order of the authors. Tables and maps should be submitted along with the text, numbered with headings. Notations in the text should indicate where these are to appear. As far as illustrations and figures are concerned, the authors are requested to send along with the text where it is relevant and send it separately in jpg format.

## **Editorial**

The editorial board is pleased to publish and disseminate the “Journal of APF Command and Staff College”, Volume 6, Issue I, 2023. We believe that the contributions by the authors in this issue reflect conceptual, theoretical and empirical research works in their respective fields. The researches have been confined to ethos of security, development and peace spectrum. It encompasses articles from scholars, researchers and practitioners aligning it with contemporary issues and security related dynamics of modern era. Professors, academics, researchers, policy makers and students may seize learning opportunity from the articles included in the journal.

The articles included in this journal are mostly research based. Views expressed in the articles are purely personal and academic opinion of the authors and are not necessarily endorsed by APF Command and Staff College and the editorial board. We would like to express sincere thanks to all the contributors for their respective inputs.

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**Journal of APF Command and Staff College**

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**Understanding the Triple Helix Model and Capitalization of Knowledge**

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**Abstract**

*This paper is a preliminary study of the Triple Helix (TH) Model that focuses on understanding the model from different perspectives following secondary research. The methodology used in this study is exploratory and descriptive in nature. Narrative review of previous literatures has been followed to understand the Triple Helix Model. Henry Etzkowitz and Loet Leydesdorff propounded a theory known as Triple Helix in connection with industry, university and government which has become a research hub. The Triple Helix is a spiral model of innovation that captures multiple reciprocal relationships at different points in the process of knowledge capitalization. Therefore, this is going to be popular not only in developed countries but also gradually becoming popular in developing countries. The question comes what is Triple Helix Model? What does the model reflects in the academia? The objective of this study is to understand Triple Helix Model on one side and the evolution of this model including its features on the other. This study examines how the Triple Helix Model has been popularized in the field of academia, industry, and government by focusing on knowledge, innovation, and entrepreneurship through education. This paper includes introduction, methodology, evolution of the Triple Helix Model, routes of the Triple Helix, knowledge production, knowledge and technology transfer, knowledge industries, capitalization of knowledge and innovation, the network society,*

**Keywords:**

*Triple Helix, knowledge production, innovation, knowledge and technology transfer, and future universities*

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*collaboration, Triple Helix and academia, teaching, learning, and future universities. The Triple Helix Model is a neo-evolutionary model of possible synergies between functions such as wealth creation, knowledge production and government regulations, which are the three helixes.*

## **Introduction**

In a recent essay in science, Bruno Latour wrote about the transition from the culture of ‘science’ to the culture of ‘research’ in the past 150 years:

“Science is certainty; research is uncertainty. Science is supposed to be cold, straight and detached; research is warm, involving, and risky. Science puts an end to the vagaries of human disputes; research creates controversies. Science produces objectivity by escaping as much as possible from the shackles of ideology, passions, and emotions; research feeds on all of those to render objects of inquiry familiar”. Latour goes on to argue that science and society cannot be separated; they depend on the same foundation (Latour, 1998, pp. 208-209; in Nowotny, Scott, & Gibbons, 2008, p. 2).

In the 1930s, Massachusetts Institute of Technology (MIT) proposed a strategy of forming new firms and pushing technology, industry, and economy forward by using the university's research under the leadership of Karl Compton. If the firms founded by MIT graduates and faculty were in an independent country, the revenues produced by the companies would make that nation the 24th largest economy in the world (Bank Boston, 1997; in Etzkowitz & Dzisah, 2008). The 4000 MIT-related companies employ about 1.1 million people and have annual world sales of US\$ 232 billion. This 1997 output was at the time comparable to a gross domestic product of US\$ 116 billion, which was a little less than the GDP of South Africa and more than the GDP of Thailand.

The growth of university-government relations was intertwined with the formation of national identity in Germany in the early 19th century, with the Humboldtian academic model integrating teaching and research. This contribution describes the origins and essential characteristics of the Humboldtian Model of Higher Education (Bongaerts, 2022). The Humboldtian Model requires that universities govern themselves, have academic freedom, and integrate education and research. It shows how this model can be integrated into the European University on Responsible Consumption and Production (EURECA-PRO). Wilhelm von Humboldt and his team developed the innovative Humboldtian Model of Higher Education in Humboldt's native Prussia between 1809 and 1810 to totally reform the education system. After founding the University of Berlin in 1810 and with the support of leading young scientists cum professors, Humboldt intended to implement this new model of tertiary education. With the emergence of the neoliberal university model in the 1990s, key elements of the Humboldtian Model have been complemented by university obligations to meet expectations from government, the business community, and society at large with regard to the usefulness and benefit of university research and educational outputs. This contribution concludes by discussing the potential of implementing the Humboldtian Model of Higher Education within EURECA\_PRO (Bongaerts, 2022).



The Triple Helix Model has carried out an old concept of university as an ivory tower. The ivory tower relates to the carriers and lifestyles of academics in university and college systems. They have often garnered reputations as elite by creating and joining associations with other universities. An ivory tower is a metaphorical place—or an atmosphere—where people are happily cut off from the rest of the world in favor of their own pursuits, usually mental and esoteric ones (Steven, 2012).

The word helix comes from the Greek word ‘elix’ meaning “twisted curved”. A filled in helix for example, a spiral (helical) ramp- is a surface called helicoid. The metaphor of Helix or Helices (Helices, spirals) refers here to interwoven and cross-connected and cross-interconnected sectors (Carayannis & Campbell, 2018). A helix is shaped like a corkscrew or spiral staircase. Nevertheless, since the Triple Helix Model itself was often viewed as an expansion of the “double helix” genetic model. It is understandable that innovation researchers might see room for further expansion. Three actors act, interact and work together for the common goal. Therefore, paying more attention to creating the capacity of university, industry, and government as three primary actors in innovation and entrepreneurship is the key (Zhou & Etzkowitz, 2021).

The term helix in this study according to the scholars, is ‘sphere’. Before 1850, much of the technological progress came from practical know-how generated by engineers as there was minute obstruction from empirical mental models in the form of the law of nature; therefore, scientific contribution came mainly from empirical accidental generalizations as there was not much collaboration between scientists and engineers. Most micro-inventions were results of experiments by engineers and through their continuous trial and error processes (Etzkowitz & Viale, 2010, p. 598). Similarly, in the second industrial revolution, some great macro-inventions, such as advances in organic chemistry were based on pivotal breakthroughs in the laws of nature, for example, the discovery of the structure of the benzene molecule by the German chemist August von Kekulé in 1855. Likewise, the first phase of the third industrial revolution is exemplified by such macro-inventions as recombinant DNA (Deoxyribonucleic Acid) and monoclonal antibodies, nuclear power, semiconductors, and antibiotics based on important scientific discoveries.

The need for collaboration between both spheres (academia & industry) is for their sustainability. Hence, the concept of the helix models came into existence in different periods of industrial revolution. According to Viale and Etzkowitz (2010, p. 597), there were different types of knowledge effective in different periods of the three industrial revolutions. According to Schwab (2016) and Sobaih and Jones (2015, p. 163), the First Industrial Revolution (1784) used water and steam power and mechanical production equipment. The Second (1870) used electric power to create mass production and division of labor. The Third (1969) used electronics and information technology to automate production. Now, a Fourth Industrial Revolution (?) is building on the Third, the digital revolution (Cyber-physical systems) that has been occurring since the middle of the last century. It is characterized by a fusion of technologies that is blurring the lines between the physical, digital, and biological spheres. It is noteworthy to mention Artificial Intelligence (AI) which has become an integral part of innovation in industrial

revolution. Artificial Intelligence is defined as a family of technologies that can recognized, analyzed, act, learn and demonstrate advanced features of human intelligence in the process of problem-solving (McCartney & McCartney, 2020; in Bulchand-Gidumal, William Secin, O'Connor, & Buhalis, 2023). Likewise, each academic revolution is mirrored by an industrial revolution. 1) First academic revolution-19th century -learning and teaching; 2) Second academic revolution-20th century-Economic and Social Development; and 3) Third Academic revolution-21st century- Entrepreneurial University- Triple Helix (Sobaih & Jones, 2015, p. 163)

Mokyr (2002, p. 25; in Viale and Etzkowitz, 2010, p. 597) says that it is agreed by historians of science and economic historians that the component of science properly speaking the classical industrial revolution was quite modest, and that the interaction of scientific knowledge and engineering, applied chemistry, agriculture and so on postdate the middle of the 19th century. Thus, it could relate to the Triple Helix Model. But to know about the Triple Helix Model, first and foremost one should be familiar with how the concept of helix historically existed. In this regard, it is noteworthy to start from the first helix i.e., the Single Helix.

This study includes introduction, review of literature, evolution of the Triple Helix Model, routes of the Triple Helix, knowledge production, knowledge and technology transfer, technology, knowledge industries, capitalization of knowledge and innovation, the network society, collaboration, Triple Helix and academia, teaching, learning, and future universities.

## **Methodology**

Reviews provide a synthesis of published literature on a topic and describe its current state-of-the-art (Ferrari, 2015). As many as 14 types of literature reviews have been described (Grant & Booth, 2009). Each review type has its own goals and protocols that lead to unique strengths and limitations researchers must bear in mind. This article is based on narrative review (unsystematic review) of previous literatures. The purpose of narrative review is to identify a few studies that describe a problem of interest. Narrative reviews have no predetermined research question or specified search strategy, only a topic of interest. They are not systematic and follow no specified protocol. Although the reviewers will learn about the problem, they will not arrive at a comprehensive understanding of the state of the science related to the problem (Demiris, Oliver, & Washington, 2019). There are three types of narrative reviews of the literature: editorials, commentaries, and overview articles (Gray, 1997; Dixon, Munro, & Silcocks, 1998; in Green, Johnson, & Adams, 2006). This study follows the third type of review. Hence, the study is exploratory and descriptive in nature. Therefore, this study followed qualitative research methodology.

This is a preliminary study of the Triple Helix Model that focuses on understanding the model from different perspectives following secondary research. While understanding the model, the research methodology adopted in this study is desktop research that includes reviews, critiques and analysis of literature based on the topic. Desktop research involves research on existing literature to create new knowledge and insight on the

relevant study (Toracco, 2016; in Moodley & Naidoo, 2022, p. 1044). Desktop research is the review of previous research findings to gain a broad understanding and gain more in-depth insight (Travis, 2022; in Moodly & Naidoo, 2022).

The objective of studying the Triple Helix Model is to understand it in a better way and to position the dynamics and evolution of university-industry-government relations within the context of challenges facing the global economy—unemployment, low or no growth, spiraling healthcare needs, rapidly emerging digital business models, unsustainable changes to the environment, and both coordinated and uncoordinated regulatory systems. Hence, this study examines how the Triple Helix Model has been popularized in the field of academia, industry, and government. For which question has been raised as what the Triple Helix Model is?

Relatively the Triple Helix Model is unknown to the academia of developing countries. While studying about academia and industry collaboration in the context of tourism and hospitality, the authors studied the article entitled “Determinants of industry–academy linkages and, their impact on firm performance: The case of Korea as a latecomer in knowledge industrialization” written by Eom and Lee (2010) and “Skilling youth through industry linkages: Case of Nepal” studied by Bhattarai (2019). These studies encouraged the authors to understand the Triple Helix Model in a better way. This is not a specific review of aspects of the Triple Helix Model, rather this is an overview of the model. This study delimits only to the Triple Helix Model because it has been already extended to the Quadruple Helix Model and the Quintuple Helix Model. Likewise, Mode 3 has not been included in this study. This is not project funding work. The authors decided to work on their own.

## **Evolution of the Triple Helix Model**

### **The Single Helix**

In the first industrial revolution, knowledge was little formalized, made of practical know-how generated by a series of individual experiments and trial and error. As a result, there is little collaboration inside the university and almost no collaboration between the university and industry. Hence, this model is a single helix (Viale & Etzkowitz, 2010, p. 599). The second industrial revolution is based on important scientific discoveries where knowledge is represented mentally by empirical models and expressed externally in natural and formal language. According to Schiffer (2003, p. 185; in Viale & Etzkowitz, 2010, p. 599), there are also instances of experimental models derived from theory, such as Benjamin Franklin’s lightning rod, which arose from the environment of the scientific academy and its informal interaction with community of practitioners; a transitional form between the first and second revolutions. Therefore, in the first case, there is a need for formal collaboration between university and industry.

### **The Double Helix**

According to Viale and Etzkowitz (2010, p. 599), it is difficult to collaborate between two polar- academy and industry as their methodological and epistemological rules and

aims are totally different. However, industry is obliged to interact with the university as it does not have skills to tackle many technical problems that arise. In this case, there were not yet the births of a hybrid organization or the phenomena of ‘industrialization’ of the academy, and the ‘scientification’ of the industry. In the second industrial revolution there was weak interaction with the government and this model is the double helix. The first phase of the third industrial revolution (1969) used electronics and information technology to automate production (Schwab, 2016) is characterized by a reinforcement of the center of gravity in formal knowledge and science, mentally represented by mental models. The mental models and the interferences are made explicit externally in formal language and became public through academic publications and patents (Viale & Etzkowitz, 2010, p. 600). The double helix model also failed to connect economic development with social development where government’s cooperation between other two spheres (academia and industry) came into the scene. Academia and government apart from each other are interacting modestly across stronger boundaries than hybrid organization, market economy, linear and nonlinear interactions (Eom & Lee, 2010). Hence, the Triple Helix Model came into existence.

### **The Triple Helix**

The Triple Helix thesis and model emerged as the new outcome of the 1990s, a time when universities and industries were exhorted by policy makers to work together more closely for the benefit of society, generating an upward trend in the commercialization of new knowledge. The thesis became articulated as a confluence between Henry Etzkowitz’ long-term interest in the study of university-industry relations and Loet Leydesdorff’s focus on an evolutionary model in which there is an overlay of communications between different and independent spheres of activity (Smith & Leydesdorff, 2012). The framework was first theorized by Henry Etzkowitz and Loet Leydesdorff in the 1990s, with the publication of “The Triple Helix, University-Industry-Government Relations: A laboratory for Knowledge-Based Economic Development”. Therefore, it is very important to know the different helices as developed by different scholars in different periods. For the first time, they are Henry Etzkowitz and Loet Leydesdorff (1995, 1997, 1998, 2000, pp. 11-112) who propounded a theory known as Triple Helix in connection with university-industry-government that explain the dynamics of their relationships which has become research hub (Hattangadi, 2022). It states that the relationships between these three actors and they must be mutually beneficial for a successful innovation system. In their studies, Vlado and Chatzinikolaou (2019) developed the concept of Triple Helix Model based on its publications into three consecutive phases: a. phase of theoretical foundation (1995-2000), b. phase of conceptual expansion (2001-2010), and c. phase of recent developments and systematic implementation attempts (2011-2018).

The Triple Helix (TH) model can be considered as an empirical heuristic which uses as explanate not only economic forces (Schumpeter, 1939; Nelson & Winter, 1982; in Smith & Leydesdorff, 2012), and legislation and regulation by regional or national governments (Freeman, 1987; Freeman & Perez, 1988; in Smith & Leydesdorff, 2012), but also the endogenized dynamics of transformations by science-based inventions and

innovations (Noble, 1977; Whitley, 1984; in Smith & Leydesdorff, 2012). The Triple Helix is a spiral model of innovation that captures multiple reciprocal relationships at different points in the process of knowledge capitalization (Etzkowitz, 2003; in Bouraoui et al., 2011). The first dimension of the Triple Helix Model is the internal transformation in each of the helices, such as the development of lateral ties among companies through strategic alliances. The second is the influence of one helix upon another. The third dimension is the creation of a new overlay of trilateral networks and organizations from the interaction among the three helices (Etzkowitz, 2002; Bouraoui et al., 2011).

The rise of the Triple Helix Model has coincided with the rise of the knowledge-based economy and innovation system, in which economic growth is based on continuous innovation and advances in science and technology. The Triple Helix Model referred in this article follows the definition provided by the Helix Conference official website: The Triple Helix relationship of university-industry-government is, to a large extent, about competition and cooperation for resources, redistribution of power and network building. From the institutional-logics perspective, the meanings of power, resources and networks vary by institutional logic (Thornton et al., 2012; in Cai, 2015).

The Triple Helix concept comprises three basic elements: (1) a more prominent role for the university in innovation, on a par with industry and government in a knowledge-based society; (2) a movement toward collaborative relationships among the three major institutional spheres, in which innovation policy is increasingly an outcome of interaction rather than a prescription from government; (3) in addition to fulfilling their traditional functions, each institutional sphere also 'takes the role of the other' performing new roles as well as their traditional function. Institutions taking non-traditional roles are viewed as a major potential source of innovation in innovation. (Triple Helix Conference website, 2011; in Cai, 2015, p. 9).

In developing the Triple Helix Model, Etzkowitz & Leydesdorff draw insights from multiple disciplines, such as "evolutionary economics, the sociology science and technology, and the sociology of higher education, as well as policy analysis with an evaluative perspective" (Zhou, 2014, p. 4; in Cai and Etzkowitz, 2020, pp. 21-22). Since 1996, the concept Triple Helix further developed and created a community of scholars' practitioners and the policy makers. The theoretical foundation of the model has been strengthened via multiple disciplinary perspectives, such as the "new evolutionary theory" (Leydesdorff & Meyer 2006; in Cai & Lattu, 2022), "neo-institutionalism" (Ranga & Etzkowitz, 2012; Galvao et al., 2019) or "institutional logics" (Cai, 2015; in Cai & Lattu, 2022) and "social network theory" (Villanueva et al., 2006; in Cai & Lattu, 2022. p. 272).

Etzkowitz and De Mello (2004; in Razak & White, 2015) trace the origins of the Triple Helix Model of innovation back to 1967, when H.W. Julius, Director of the Netherlands Central Organization for Applied Scientific Research, introduced the concept of a 'triangle'. He stated: "all those responsible, in one way or another, for the all-important economic development of their countries rack their brains to find the balance within the many complicated relationships in the modern eternal triangle of government, industry

and science” (Etzkowitz & De Mello, 2004, p. 163; in Razak & White, 2015). As a universal model (Zhou & Etzkowitz, 2021, p. 3), the Triple Helix can be used to address issues in micro, meso and macro levels. It is a significant scientific discovery and distinct contribution to innovation and entrepreneurship studies, as well as environmental philosophy (Beckman, 2021; in Zhou & Etzkowitz, 2021) The Triple Helix was identified in the early 1980s, through the analysis of an “entrepreneurial university” (MIT) and its role in resolving the dilemma of creative destruction in the renewal of the New England region in 1920–1940s (Etzkowitz, 1983; Zhou & Etzkowitz, 2021). The validity of the model was confirmed through observation of the co-evolution of Stanford University and Silicon Valley. Almost as soon as it was proposed, observers were tempted to add additional helices to address issues beyond innovation, vitiating the original purpose without providing a logical methodology other than simple additionality.

Hattangadi (2022) defines the Triple Helix Model of innovation as it refers to constant interactions between academia, industry, and governments to foster economic and social development. The model emphasizes boosting innovation for development. The Triple Helix Model includes economic development, teaching, and research (Etzkowitz & Viale, 2010, p. 2; Sobaih & Jones, 2015, p. 162). Carayol (2003; in Viale & Etzkowitz, 2010, p. 600) argued that the need for epistemological and cognitive integration between science and technology brought about deep change in academy-industry relations. It is through the leadership and cooperation of individuals from universities, industry, and government that all three institutional spheres participate in the birth of hybrid institutions and this model is the Triple Helix. Viale & Etzkowitz (2010, p. 601) also highlights that future scientists should be able to manage different and distant conceptual frames and see both the theoretical and practical implications of their research.

It describes the role of universities in joining hands with industry and government. It explains social formats for the production, transfer, and application of knowledge. Triple Helix covers the creative destruction – a concept coined by Joseph Schumpeter in 1942 which describes that new innovations kill the older ones. Innovation arises within each of the three spheres – university, industry, and government. The best example of Triple Helix is Silicon Valley. The government provided land, flexible financing, stretched tax holidays and fitting guidelines to the IT cluster in California, US. The small and big IT businesses thrived in this cluster. The world has seen success stories of Dell, HP, Oracle, Intel, Microsoft etc. The very needs of the industry, powered by the created market, generate the need for academia which in this case comprises ICT professionals who are given all facilities to do Research and Development (R&D) and new product development to boost new products. Government, industry, and academia all profit as taxes is collected on sales of goods, revenue is generated, and knowledge is developed inside a suitable research environment (Hattangadi, 2022).

Generally, new technical and scientific knowledge is often regarded as the prime source of innovation, Von Hippel (1988; in Hjalager, 2015) emphasized R&D as a principal driver of innovation. R&D includes not only enterprises’ own R&D but also R&D mediated and stimulated through universities and public research units, military spending, etc., which leads to significant discoveries that may eventually result in

successful commercialization. Over the years, innovation studies have increasingly included other sources of ideas and inspiration for innovation, thus recognizing that many firms are innovative in spite of the fact that they do not invest in formalized R&D. A point raised by Leonard-Barton (1995; in Hjalager, 2015) is that some categories of core knowledge capabilities are essential to have inside the companies, while less critical resources can be insourced when needed. In her view, sustaining the sources of innovation is a strategic process of great importance, and creative knowledge is not confined to specified departments and dedicated employees but rather is widespread.

Some studies on triadic factor dynamics in different fields have well supported this model. For example, this "triadic reciprocal causation" in psychology, introduced by Albert Bandura (Eysenk, 2004; in Zhou & Etzkowitz, 2021, p. 3) refers to the mutual influence between three sets of factors: (1) personal factors (e.g., cognitive, affective, and biological events); (2) the environment; and (3) behavior. These three factors play roles as three interrelated actors. Moreover, triadic is in line with the reasonableness parsimony criteria of Occam's razor. The best example is Chinese philosopher Lao Tzu's (570 BC) discovery, stating in Tao Te Ching as that Tao begat one, One begat two, Two begat three, Three begat all things (Lao Tzu, 2021; in Zhou & Etzkowitz, 2021).

The elements of evolutionary theory in the development of the Triple Helix Model were first described by Etzkowitz (2003). According to Dosi (1982; in Razak & White, 2015), in a co-evolutionary model, two sub-dynamics (technologies and institutions) are assumed to operate upon each other, and this co-evolution could be further reinforced over time. From an evolutionary view, it is possible that a double helix will produce a fairly stable trajectory when the two sub dynamics mutually shape each other in a co-evolution. Academic patenting and licensing activities have massively increased since the 1980s in the United States and the 1990s in Europe. As this trend is clearly impacting the dissemination of and access to academic knowledge, the question arises whether the current encouragement of academic patenting and licensing is indeed generating the main benefit that policy makers at both the university and the government level claim it is achieving. Namely, the commercial development of academic knowledge.

Knowledge production and diffusion are widely viewed as the engines of economic and social progress in Western societies (European Commission, 1997; in Hladchenko & Pinheiro, 2018). The advent of the "knowledge economy" has put a premium on the interplay between science and society/economy in the context of technology transfer and other collaborative arrangements to foster global competitiveness. As a result, conceptualizations such as the Triple Helix Model (Etzkowitz & Leydesdorff, 2000; Hladchenko & Pinheiro, 2018) have become rather prevalent across policy and academic circles alike. Heuristically, the Triple Helix prescribes corresponding institutional logics both at the societal field level and at the level of the organizational fields of higher education and science, on the one hand, and industry/business, on the other (Cai, 2014; Hladchenko & Pinheiro, 2018). The core trigger for the implementation of the Triple Helix lies in the institutional logic of the state, which involves "shared beliefs on knowledge as a key to economic growth" (Cai 2014, p. 4; Hladchenko & Pinheiro, 2018). Cai (2014; Hladchenko & Pinheiro, 2018) argues that the dominant institutional

logics in non-Western societies, which tend to be contrary to the “ideal” institutional logics of Western societies, can hinder the implementation of the Triple Helix Model. The four-stage development model differs from Etzkowitz's three-step model, but the focus of the four-stage model is how the concept of Triple Helix has been institutionalized (see table 1)

**Table 1**

*The Evolution of the Ideal Triple Helix Model*

Stages of development	Major Triple Helix activities	Favorable institutional logics
Stage I. Realization of the needs	Realizing the importance of entering a reciprocal relationship between university, industry, and government	Shared beliefs on knowledge as a key to economic growth.
Stage II. Intra-organizational transformation	Taking the role of the other	Market orientation Process management
Stage III. Interactions between organizations	Growing and innovating through cooperation with others. Generating hybrid organizations	Effective IP protection system Civil society
Stage IV. Institutionalization of the Triple Helix Model	Feedback loops between policymakers and participants Institutionalized norms of ‘entrepreneurial university’, ‘knowledge-based formation and growth’, and ‘innovation state’ (Etzkowitz, 2008)	Competitive market Democratic policymaking

*Note.* Adopted from Cai (2015, p. 17) which describes the evolution of the ideal Triple Helix Model.

While highlighting the importance of the Triple Helix Model as a global model, scholars of different disciplines have published many different leading books. As quoted by Cai and Etzkowitz (2020), the Triple Helix Model has been elucidated by Etzkowitz in his book *Triple Helix: University-Industry-Government Innovation in Action* (Etzkowitz, 2008) and especially its second edition (Etzkowitz & Zhou, 2017), e.g., on the concepts of field theory, the role of Civil Society in Triple Helix, and the knowledge, consensus, and innovation spaces. In addition, other scholars have contributed to developing theoretical foundations of Triple Helix, drawing from various theoretical insights, such as institutional theory (Cai, 2014, 2015), social network theory (Deakin, 2014; Cai, 2014, 2015), and game theory (Megnigbeto, 2018; Cai, 2014, 2015). The above-mentioned model and theories are the foundation of many different theories-oriented books on knowledge production, technology, innovation, entrepreneurship, and university. The books are *Theory and Practice of the Triple Helix System in Developing*



*Countries: Issues and Challenges* by Saad and Zawdie (2011), *The New Production of Knowledge: The Dynamics of Science and Research in Contemporary Societies* by Gibbons, Limoges, Nowotny, Schwartzman, Scon, and Trow (2010), *The Commodification of Academic Research: Science and the Modern University* by Radder (2010), *The Capitalization of Knowledge: A Triple Helix of University–Industry Government* by Viale and Etzkowitz (2010), *The New Invisible College: Science for Development* by Wagner (2008), *Re-thinking Science: Knowledge and the Public in an Age of Uncertainty* by Nowotny et al. (2008), *The Constitution of Knowledge: A Defense of Truth* by Rauch (2021), *Knowledge Democracy: Consequences for Science, Politics, and Media* by In't Veld (2010), and *The Age of Knowledge: The Dynamics of Universities, Knowledge & Society* by Dzisah and Etzkowitz (2012). Other improvements include identification of enabling conditions (Ranga & Etzkowitz, 2013; Cai & Etzkowitz, 2020) the distinction between institutional spheres and functions (Zhou, 2014; Cai & Etzkowitz, 2020), and circulation around the Triple Helix (Etzkowitz & Dzisah, 2012; in Cai & Etzkowitz, 2020). There are many articles related to the Triple Helix Model that are published in policy research journals. Latterly, the first issue of the Triple Helix Journal entitled *Triple Helix: A Journal of University-Industry-Government Innovation and Entrepreneurship* edited by Yuzhuo Cai and Marcelo Amaral as its own discipline came out in 2014 which became the landmark of producing knowledge on the Triple Helix Model.

The disciplinary norm view posits that there are large differences in publication productivity and commercialization opportunities across disciplines. These are determined primarily by the traditions, methodologies, and reward structures of each discipline (Teodorescu, 2000; in Halilem, 2010). A typology was used to differentiate disciplines: Physical sciences and Engineering (Chemical Engineering, Chemistry, Computer Science, Earth and Planetary Sciences, Energy, Engineering Materials Science, Mathematics, Physics, and Astronomy); Life sciences (Agricultural and Biological Sciences; Biochemistry, Genetics, and Molecular Biology; Environmental Science; Immunology and Microbiology; Neuroscience); Health sciences (Medicine and Dentistry, Nursing and Health Professions, Pharmacology, Toxicology and Pharmaceutical Science, Veterinary Science, and Veterinary Medicine); and Social Sciences and Humanities (Arts and Humanities, Business, Management and Accounting, Decision Sciences, Economics, Econometrics and Finance, Psychology, and Social Sciences). These four sets of disciplines were equally studied in literature. However, when considering the differences between the focus, Social Sciences and Humanities were studied more in the case of Research (35%), but less in the case of Entrepreneurialism (13%). Physical Sciences and Engineering were studied more in the case of Entrepreneurialism (35%). One explanation is that researchers in Physical Sciences and Engineering are significantly more involved in knowledge transfer than their colleagues in other research fields (Landry et al., 2006; in Halilem, 2010); they obtain substantially more industry funding and thus commercialize more than the other disciplines (Harman, 2001; in Halilem, 2010).

The Triple Helix of innovation has attracted considerable attention in both developed

and developing economies as an integral policy making tool to enhance innovation and promote economic development (Etzkowitz & Leydesdorff, 1997; in Razak & White, 2015). Specifically, it advocates the strengthening of collaborative relationships between (1) academia (university; novelty production), (2) industry (business; wealth generation), and (3) government (state; public control) and networks, putting a particular emphasis on “trilateral networks and hybrid organizations”, where those helices overlap in a hybrid fashion to improve innovation (Etzkowitz & Leydesdorff, 2000, pp. 111-112; Leydesdorff & Meyer, 2006).

Clearly some senses of the changes were heralded earlier in the 20th century in the first real steps then taken towards building academic industrial links, notably those originated at MIT, by Vannevar Bush and his colleagues at MIT. Similarly, the research corporation, founded by Frederick Cottrell, a professor of chemistry at the University of California Berkeley, introduced the principle of utilizing income generated by patents to seed-fund new research. A potentially self-generating system of research funding was initiated that was subsequently expanded by the government. This contrasted with many European, Asian and Latin American countries where basic and even applied research was pursued in government institutes (Etzkowitz, Webster, Gebhardt, & Terra, 2000, p. 317). When the Helix Model became popular, some case studies revealed that countries like Korea, Mexico, Brazil, Ghana, Indonesia, Malaysia, and India (Saad & Zawdie, 2011) adapted this model. This reveals how the Triple Helix Model is becoming a global phenomenon that is formulated as a model for helping with the explanation of a phenomena (Smith & Leydesdorff, 2012).

### **Routes of the Triple Helix Model**

The evolution of the Triple Helix Model may have different trajectories in different institutional contexts. Etzkowitz and Leydesdorff (2000) distinguish three types of Triple Helix Models, namely the ‘statist model’, the ‘laissez-faire model’, and the ‘balanced model’ (Ranga & Etzkowitz, 2013). The path to the Triple Helix begins from two opposing standpoints: a statist model of government controlling academia and industry, and a laissez-faire model with industry, academia, and government separate and apart from each other, interacting only modestly across strong boundaries.

### **Statist Society**

In his book Etzkowitz (2008, p. 13) has described dominant institutional spheres in some countries. Industry and the university are subordinate parts of the state. When relationships are organized among the institutional spheres, the government plays the coordinating role. In this model, the government is expected to take the lead in developing projects and providing the resources for new initiatives. Industry and academia are seen to be relatively weak institutional spheres that require strong guidance, if not control. The statist model relies on specialized organizations linked hierarchically by the central government. Translated into science and technology policy, the statist model is characterized by specialized basic and applied research institutes, including sectoral units for industries. Universities are largely teaching institutions, distinct from industry.

The statist model often carries with it the objective that the country should develop its technological industry separately from what is happening in the rest of the world. In Europe this model can be seen in terms of companies that are expected to be the dominant national leader in a particular field, with the government supporting those companies, such as the Bull computer company in France.

### **Laissez-Faire Society**

In this model, the university is a provider of basic research and trained persons. Its role in connection with industry is to supply knowledge, mainly in the form of publications and graduates who bring tacit knowledge with them to their new jobs. It is up to industry to find useful knowledge from the universities without expectations of much assistance. Industry is also expected to operate on its own, with firms linked to each other by the market relationships of buying and selling. There is expected to be intense competition among firms, with collaboration forbidden.

In the Laissez-faire model the role of government is expected to be limited to clear cases of “market failure” when economic impetuses by themselves do not call an activity into existence. There is expected to be only limited interactions between university, industry, and government in a Laissez-faire regime. When there are inter-actions and interrelationships among the spheres, they are expected to take place across strongly defended boundaries preferably through an intermediary. For example, many years before US universities became directly involved in patenting and research there was an organization called the research cooperation, an independent not-for-profit organization.

### **Balanced Model**

The above-mentioned two different routes (statist and laissez-faire society) gave birth to the third route i.e., known as The Triple Helix Model (Etzkowitz, 2003; in Hladchenko & Pinheiro, 2018) to which scholars addressed it as an ideal or balanced or hybrid model that includes the relationship between the three spheres (academia, industry, and government) (Viale & Etzkowitz, 2010). According to Etzkowitz and Klofsten (2005; in Razak & White, 2015), the hybrid Triple Helix Model can be described as characterized by the following elements:

- a. a prominent role for the university in innovation, on
- b. a par with industry and government in a knowledge-based society
- c. a movement towards collaborative relationships among the three major institutional spheres in which innovation policy is an outcome of their interactions rather than a prescription from the government.
- d. In addition to fulfilling their traditional functions, each institutional sphere also "takes the role of the other" (Etzkowitz & Klofsten, 2005, p. 245; Cai, 2015, p. 12; Razak & White, 2015).

The emerging demands for cooperation (partnership) with others address challenges that gradually lead to the second stage of Triple Helix development, where internal

transformation is characterized by 'taking the role of the other', (Etzkowitz, 2008, p. 9) and 'take the view of the other' (Etzkowitz & Viale, 2010, p. 602). This means that, in addition to performing its traditional (as primary activities), each takes the role of the other (as secondary activities), but meanwhile university, university or government retain their respective primary roles and distinct identities (Cai, 2015, p. 12). Thus, taking the role of the other can also be perceived as organizations learning from each other and as a way of organizational innovation (Cai, 2015).

### **Knowledge Production**

Knowledge production has become the part and parcel of the Triple Helix studies which has been applied by most of the scholars who studied on the Triple Helix Model. The author team of Gibbons et al., (2010) distinguish between two different modes of knowledge production, and they are "Mode 1" and "Mode 2" which has been critically analyzed by Carayannis and Campbell (2010, 2018).

Mode 1 refers to a form of knowledge production- a complex of ideas, methods, values, norms-that has grown up to control the diffusion of the Newtonian model to more and more fields of inquiry and ensure its compliance with what is considered sound scientific practice. Mode 1 is meant to summarize in a single phrase the cognitive and social norms which must be followed in the production, legitimation, and the diffusion of knowledge of this kind. For many, Mode 1 is identical with what is meant by science (Gibbons et al., 1994/2010, p. 3). Mode 1 focuses on the traditional role of university research in an elderly "linear model of innovation" understanding. This reflects basic university research which converts into applied research and finally transforms into applied research to experimental development (Carayannis & Campbell, 2009, p. 210). The basic university research is interested in "first/basic principles" and "discoveries", with a disciplinary research structure, where quality is controlled primarily by disciplinary peers or a disciplinary peer review process. This disciplinary peer exercises a strong quality gatekeeper function and represents a university (higher education) system with powerful hierarchies, built into the institutions (Gibbons et al., 2010).

Success in Mode 1 (of Mode 1 university research) is defined as a quality or excellence that is approved by hierarchically established peers: "Success in Mode 1 might perhaps be summarily described as excellence by disciplinary peers" (Gibbons et al., 2010). Mode 1 is not concerned with the application, diffusion and use of knowledge and Mode 1 does not focus on features in relation to problem-solving for the society or the economy. Non-linear innovation models are of no major concern for Mode 1.

"Non-linear models of innovation", on the contrary, underscores a more parallel coupling of basic research, applied research and experimental development. Thus, Higher Education Institutions (HEIs) in general, university-related institutions and firms join together in variable networks and platforms for creating innovation networks and knowledge clusters (Carayannis & Campbell, 2009, p. 210). Mode 2 knowledge production, on the contrary, can be characterized by the following five principles: (1) "knowledge produced in the context of application"; (2) "trans-disciplinarily"; (3) "heterogeneity and organizational diversity"; (4) "social accountability and reflexivity";

(5) and “quality control” (Carayannis & Campbell, 2010, p. 9). Mode 2 represents a “problem solving which is organized around a particular application” and where “Knowledge production becomes diffused throughout society. This is why we also speak of a socially distributed knowledge” (Gibbons et al., 2010). In Mode 2 the terms “discovery”, “application” and “fabrication” (also fabrication of knowledge) overlap. Continuous communication and negotiation between knowledge producers are crucial. Manifold network arrangements are a necessary feature for linking together knowledge producing sites “through functioning networks of communication” (Gibbons et al., 1994, p. 6; in Carayannis & Campbell, 2010, p. 9).

Analytically the set of attributes is used to allow the differences between Mode 1 and Mode 2 to be specified with some clarity. To summarize using terms which will be explored more fully below; in Mode 1 problems are set and solved in a context governed by the, largely academic, interest of a specific community. By contrast, Mode 2 knowledge is carried out in the context of application. Mode 1 is disciplinary while Mode 2 is transdisciplinary. [T]ransdisciplinarity refers to knowledge or research that frees itself of its specialized or disciplinary boundaries, that defines and solves its problems independently of disciplines, relating these problems to extra-scientific developments (Mittelstraß 1992, p. 250, translated; in Bunders, Broerse, Keil, Pohl, Scholz, & Zweekhorst, 2010). Mode1 is characterized by homogeneity, Mode 2 by heterogeneity. Organizationally, Mode1 is hierarchical and tends to preserve its form, while Mode 2 is more heterarchical and transient. Each employs a different type of quality control. In comparison with Mode 1, Mode 2 is more socially accountable and reflexive. It includes a wider, more temporary, and heterogeneous set of practitioners, collaborating on a problem defined in a specific and localized context (Gibbons et al., 2010, p. 3). Carayannis and Campbell (2018) defined Mode 1 as “academic excellence” and Mode 2 as “problem-solving.”

### **Knowledge and Technology Transfer**

Knowledge transfer (KT) has been identified as an essential element of innovation which drives competitive advantage in increasingly knowledge-driven economies and in which small firms have an important part to play (Lockett, Cave, Kerr, & Robinson, 2009, p. 265). Knowledge transfer means the two-way transfer of ideas, research results, expertise, or skills between one party and another that enables the creation of new knowledge and its use in:

- a. The development of innovative new products, processes and/or services
- b. The development and implementation of public policy.

Knowledge transfer will encourage the dissemination and assimilation of knowledge and stimulate engagement between wider society (including business, government and public) and the research community (RCUK, 2006b; in Lockett et al., 2009). It should note that the term knowledge transfer has become synonymous with a range of related terms, including dialogue (Ruddle 2000; in Lockett et al., 2009), exchange (Schartinger et al., 2002; Swart & Henneberg 2007; in Lockett et al., 2009) and translation

(Czarniawska & Sevon, 1996; in Savory, 2006; Lockett et al., 2009). The term knowledge transfer is used widely within government (HM Treasury, 2006; in Lockett et al., 2009), research councils (RCUK, 2006b; in Lockett et al., 2009), HEIs (Lambert, 2003; in Lockett et al., 2009) and agencies, such as Association for University Research and Industry Links (AURIL), as an overarching term which encompasses interaction between universities and industry.

Technology transfer and knowledge transfer are often used interchangeably as technology transfer involves the creation and uptake of new knowledge, while the creation and uptake of new knowledge usually imply the use of technology (Amesse & Cohendet, 2001; Gopalakrishnan & Santoro, 2004; Oliver & Liebeskind, 1998; in Landry, Amara, & Quimet, 2007, p. 563). Following Gopalakrishnan and Santoro (2004; in Landry et al., 2007, p. 563), technology transfer refers to a much more limited set of activities than knowledge transfer. In fact, technology and knowledge differ significantly in four aspects: purpose, degree of codification, type of storage and degree of observability. Technology refers to tools for changing the environment, while knowledge embodies theories and principles helping us to understand the relationships between causes and effects. Technology refers to codified information stored in publications, software, and blueprints, whereas knowledge tends to have a tacit component and is stored in people's heads. Technology is tangible and the impact of its use is precise while knowledge can be less tangible and the impact of its use is more amorphous (Landry et al., 2007).

Scholarly studies on research transfer have primarily concentrated on the commercialization of research and protected intellectual property. Knowledge transfer between universities and industry or government agencies has been tracked through patent data (Henderson, Jaffe, & Trajtenberg, 1998; Mowery, Sampat, & Ziedonis, 2002; in Landry et al., 2007, p. 563), citation analyses (Spencer, 2001; in Landry et al., 2007, p. 563), licensing (Thursby & Thursby, 2002; in Landry et al., 2007, p. 563), spin-off creations (Link & Scott, 2005; Lockett & Wright, 2005; O'Shea, Allen, Chevalier, & Roche, 2005; Powers & McDougall, 2005; Shane & Stuart, 2002; Zucker, Darby, & Armstrong, 2002; in Landry et al., 2007, p. 563), collaboration between universities and industry and/or government agencies (Cohen, Nelson, & Walsh, 2002; Irwin, More, & McGrath, 1998; Lee, 1996; Owen-Smith, 2002; Patel & Pablo d'Este, 2005; in Landry et al., 2007, p. 563), and assessment of university technology transfer offices (Rogers, Yin, & Hoffmann, 2000; Siegel et al., 2003; Trune & Goslin, 1998; in Landry et al., 2007, p. 563).

Thus, technology transfer is a two-way flow from university to industry and vice versa, with different degrees and the forms of academic involvement: (1) the product originates in the university but its development is undertaken by an existing form, (2) the commercial products originates outside of the university, with academic knowledge utilize to improve the product, or (3) the university is the source of the commercial product and the academic inventor becomes directly involved in its commercialization through establishment of a new company (Etzkowitz, 1998, p. 827).

## **Technology**

A 'Triple Helix' of academic-industry-government relations is likely to be a key component of any national or multinational innovation strategy in the late twentieth century. The focus on interactions between institutions of fundamental research 'on the supply side' and corporations has not only been reflected in technology policies, but also in technology studies. Linear models of 'demand pull' or 'technology push' have been superseded by evolutionary models that analyze the developments in terms of networks (Nelson & Winter, 1982; Dosi et al., 1988; Leydesdorff & Van den Besselaar, 1994; in Etzkowitz & Leydesdorff, 1997). Nonlinear dynamics has provided us with co-evolutionary models: How do technologies and institutions co-evolve (Nelson, 1994; in Etzkowitz & Leydesdorff, 1997).

The Triple Helix (TH) model was emerged from workshop on Evolutionary Economics and Chaos Theory: New Directions in Technology Studies (Leydesdorff & Van den Besselaar, 1994; in Etzkowitz & Ledesdorff, 1997; Leydesdorff & Meyer, 2006) organized with the intention of crossing the boundaries between institutional analysis of the knowledge infrastructure, on the one hand (Etzkowitz, 1994; in Leydesdorff & Meyer, 2006), and evolutionary analysis of the knowledge base of an economy, on the other (David & Foray, 1994; Nelson, 1994; in Leydesdorff & Meyer, 2006). The evolutionary analysis focuses on the functions of selection environments in terms of outputs, whereas the historical analysis informs us about how institutions and institutional arrangements carry these functions (Andersen, 1994; in Leydesdorff & Meyer, 2006). In the call for papers for the first time the Triple Helix conference, Etzkowitz and Leydesdorff (1995) formulated this tension between the historical and evolutionary perspectives as follows: "Three sources of variation have been acknowledged in technology studies: (1) industrial sectors differ with respect to their relations to the technologies that are relevant for the developments in those sectors (Pavitt, 1984; in Leydesdorff & Meyer, 2006); (2) different technologies induce different patterns of innovation and diffusion (Freeman & Perez, 1988; Faulkner & Senker, 1994; Leydesdorff & Meyer, 2006); and (3) systems of innovation (national systems of innovation) integrate and differentiate the various functions differently (Lundvall, 1998; in Eom & Lee, 2010; Nelson, 1993; in Leydesdorff & Meyer, 2006). The variations, however, are both functional and institutional. The functional communications can sometimes be codified in new institutional settings; the institutional sectors (public, private and academic) that formerly operated at arm's length are increasingly working together, with a spiral pattern of linkages emerging at various stages of the innovation process" (Etzkowitz & Leydesdorff, 1995, p. 15).

## **Knowledge Industries**

Knowledge industries are those industries which are based on their intensive use of technology and/or human capital. While most industries are dependent in some way on knowledge as inputs, knowledge industries are particularly dependent on knowledge and technology to generate revenue. Some industries that are included in this category include education, consulting, science, finance, insurance, information technology,

health service, and communications. The term "knowledge industry" was suggested by Austrian-American economist Fritz Machlup to describe these industries in the context of his new idea of the knowledge economy. He first proposed and popularized the ideas of knowledge industries and the knowledge economy in his 1962 book, *The Production and Distribution of Knowledge in the United States* (Nyiri, 2002).

### **Capitalization of Knowledge and Innovation**

Capitalization of knowledge happens when knowledge generates an economic added value. The generation of economic value can be said to be 'direct' when one sells the knowledge for some financial, material, or behavioral good. The Triple Helix is a model for capitalizing knowledge in order to pursue innovation (Viale, 2010, p. 31).

According to Etzkowitz and Viale (2010) and Viale (2010, p. 32), the emergence of the new academic role of the Janus scientist who have followed two faces of Greek God, one who is able to interface both with the academic and industrial dimensions of research, reveals itself through the introduction of new institutional rules and incentives quite different from traditional academic ones. The need for stronger and more extensive face to face interaction is manifested through the phenomenon of the proximity between universities and companies and through the creation of hybrid organizations of R & D. Similarly, Viale and Etzkowitz (2010, p. 599) also coined a term 'Kali Scientist' for the new scientist who are focused on the generation of knowledge for innovation as a metaphor, like the many arms of the Hindu Goddess Kali, she uses different disciplinary approaches in problem solving.

Knowledge can be subdivided into the categories ontic and deontic (Viale, 2010). Ontic knowledge analyses how the world is, whereas deontic knowledge is focused on how it can be changed. These two forms of knowledge can be represented according to two main modes: the analytical mode deals with the linguistic forms that we used to express knowledge; the cognitive mode deals with the psychological ways of representing and processing knowledge (Viale, 2010, p. 33).

The term or concept of innovation can have several meanings. Innovation may mean "change" only or can also refer to an "improvement" or "betterment." As stated by Phan (2004; in Batala, Regmi, Sharma, & Ullah, 2019, p. 411) innovation did not equate to invention. Schumpeter (2006; in Batala et al., 2019) redefined that inventions were connected with basic scientific or technological research, while innovations were further developments of these, or the application of bright ideas. According to the Thompson's (1965; in Batala et al., 2019), definition "innovation is the generation, acceptance and implementation of new ideas, processes products or services".

In a modern sense, innovation is being understood mostly as knowledge-based or knowledge-driven. So how can there be a change, improvement, betterment, or reform, which is leveraging, using, and applying knowledge? The history of science and technology relates to the invention of methods, tools, and techniques, and it investigates how emerging knowledge has enabled people to create new things and systems (McNeil 1990; Bijker, Hughes, & Pinch 2012; in Hjalager, 2015). Further, the history of science



and technology examines how humanity's understanding of the natural world (science) and ability to manipulate it (technology) have changed over time. As an academic discipline, it also addresses the cultural, economic, and political impacts of scientific inventions and innovations. While knowledge production (or knowledge creation) is often associated closer to research (R&D innovation expresses a focus of utilizing knowledge for economic (economy), social (society), and political (democracy) purposes. In that sense, mature innovation and innovation systems require a knowledge base or knowledge production (Carayannis & Campbell, 2018).

Innovation can be traced back to innovative individuals, the 'entrepreneurs', in Schumpeter's major piece of work entitled 'The theory of economic development' published in German in 1912 and first translated into English in 1934 (Schumpeter, 1983; in Nguyen, 2022). The field of innovation studies was established later in the late 1950s (Martin, 2012; in Nguyen, 2022). These days, the definition of innovation often aligns with what Schumpeter underlined about novelty, yet the types of innovation are varied, and the importance of innovation goes beyond its conventional economic value (Cajaiba-Santana, 2014; De Vries et al., 2016; in Nguyen, 2022).

Innovation is a complex process involving a significant number of actors and sources of learning, knowledge, and skills (EU, A Background Paper, 2008; in Bouraoui et al., 2011). A Triple Helix Model of university-industry-government as relatively equal, interdependent, and inter-acting institutional spheres is increasingly becoming the requisite basis for innovation and development in a knowledge-based society (Etzkowitz & Dzisah, 2008). Innovation takes on a new meaning as the spirals of the triple helix intertwine. Innovation is one of the main engines of long-term economic growth and is closely linked with knowledge which is the major value creating factor in modern society. The word knowledge refers to the theoretical or practical understanding of a subject. Knowledge is also associated with expertise and skills gained by a person through experience or education. Knowledge is produced through research. There are two different types of research: curiosity-driven research and technology-driven research.

There are clear indications that the conceptualization and contextualization of knowledge have become increasingly broader. Knowledge creation and production was and still is being extended to knowledge application, diffusion, and use, incorporating ideas of innovation. Knowledge users out in the practical fields are just as important as knowledge producers (knowledge creators), and, depending on the specific constellation or network configuration (for example, in a non-linear innovation arrangement), the same person or institution can act as a knowledge producer and/or knowledge user (Carayannis & Campbell, 2010).

In fact, innovation which refers to the reconfiguration of elements into a more productive combination (Etzkowitz, 2008), has taken on a broader meaning within the context of an economic structure predicated on knowledge. The implicit understanding inherent in this new transformation is that we are dealing with a new logic of 'innovation in innovation' based upon the restructuring and enhancement of the organizational

arrangements and incentives that foster creativity. Based on these calculations, the university is increasingly being viewed as the institution capable of taking up, in addition to its traditional roles of knowledge production, preservation, and transmission, the task of socio-economic development and regional innovation. This ambitious mandate is derived from the growing awareness that productivity and global competitiveness are based on the constant production, mobilization, and generation of both new and reformulated knowledge (Castells 1996; in Dzisah, & Etkowitz, 2012).

### **The Network Society**

The new society is made up of networks. Networks are, however, a very old form of social organization. But throughout history, networks have had major advantages and a major problem. Social network theory is an umbrella term for theories that focus on individuals, teams and organizations, and the web of interpersonal relationships that both constrain and enable human action in these social systems. The problem was the embedded inability of networks to manage complexity beyond a critical size. Networks were historically useful for personal interaction, for solidarity, and for reciprocal support. But they were bad performers in mobilizing resources and focusing these resources on the execution of a given task. Large, centralized apparatuses usually outperformed networks in the conduct of war, in the exercise of power, in symbolic domination, and in the organization of standardized, mass production. Yet this substantial limitation of networks & competitive capacity was overcome with the development of new information/communication technologies, epitomized by the Internet. Electronic communication systems give networks the capacity to decentralize and adapt the execution of tasks, while coordinating purpose and decision making. Therefore, flexibility can be achieved without sacrificing performance. Because of their superior performing capacity, networks, through competition, are gradually eliminating centered, hierarchical forms of organization in their specific realm of activity (Castells, 2000, p. 695).

A network is a set of interconnected nodes. Networks are flexible, adaptive structures that, powered by information technology, can perform any task that has been programmed in the network. They can expand indefinitely, incorporating any new node by simply reconfiguring themselves, on the condition that these new nodes do not represent an obstacle to fulfilling key instructions in their program. For instance, all regions in the world may be linked into the global economy, but only to the point where they add value to the value-making function of this economy, by their contribution in human resources, markets, raw materials, or other components of production and distribution. If a region is not valuable to such a network, it will not be linked up; or if it ceases to be valuable, it will be switched off, without the network as a whole suffering major inconvenience. Naturally, networks based on alternative values also exist, and their social morphology is like that of dominant networks, so that social conflicts take the shape of network-based struggles to reprogram opposite networks from the outside. How? By scripting new codes (new values, for instance) in the goals organizing the performance of the network. This is why the main social struggles of the information age lie in the redefinition of cultural codes in the human mind. The network enterprise, as a new form

of business organization, is made of networks of firms or subunits of firms organized around the performance of a business project. Governance relies on the articulation among different levels of institutional decision making linked by information networks. And the most dynamic social movements are connected via the Internet across the city, the country, and the world (Castells, 2000, p. 695).

The prevalence of networks in organizing social practice redefines social structure in our societies. According to Castells (2000), “social structure means the organizational arrangements of humans in relationships of production/consumption, experience, and power, as expressed in meaningful interaction framed by culture”. In the Information Age, these specific organizational arrangements are based on information networks powered by microelectronics-based information technologies (and in the near future by biologically based information technologies) (Castells, 2000, p. 695). Under the conditions of this new, emerging social structure, sociology must address several conceptual and methodological issues in order to be equipped to analyze core processes of social organization and social practice (Castells, 2000, pp. 695-696).

### **Collaboration**

The collaboration between science and technology became intense at its origin as university came into the scene as an engine when industry started to support the process, and government also functioned as an acceleration that had encouraged, structured, and funded these discoveries. Therefore, academy-industry relations as well as government support, directly and indirectly had resulted in the micro-inventions in the sectors of biotechnologies and information & communication technologies (Viale & Etzkowitz, 2010, p. 598). Research collaboration takes formal (personal or research exchange; joint research, contract research, consulting, patent and publications or industry- funded laboratories) informal (meetings/conferences) mechanisms (Abbasnejad et al., 2011; in Sobaih & Jones, 2015, p. 162). The Council on Government Relations (1995; in Sobaih & Jones, 2015) in the US has listed six mechanisms for university-industry research collaboration : sponsored research, collaborative research, consortia, technology licensing, star-up companies and exchange of research materials.

Viale & Etzkowitz (2010, p. 598) argued that integration means more than collaboration. Therefore, integration between research in different fields and between academia and industry can reinforce the global role of the universities-from basic science to innovation and production-the development of less specialized universities with a wider disciplinary scope and the birth of a new scientist who integrates knowledge and innovation as in the entrepreneurial model. Moreover, such scientists also synthesize different kinds of disciplinary knowledge, for example life sciences and informatics or life sciences and nanotechnology or cognitive science and informatics or cognitive sciences and biotechnology, and like Leroy Hood, formerly of the California Institute of technology and the University of Washington, are involved in the creation of new disciplines from synthesis of elements of previous ones, as in bioinformatics (Viale & Etzkowitz, 2010, p. 598).

### **Triple Helix and Academia**

According to Bhattarai (2019), Technical and Vocational Education and Training (TVET) is an integral part of the national education system in all societies. It involves the study of technologies and related sciences, and acquisition of practical skills, attitudes, understanding, and knowledge relating to occupations in various sectors of economic and social life and prepares people for the world of work. Bhattarai (2019, p. 8) follows four pillars of education on the basis of Delor's (1996; in Bhattarai, 2019, p. 8) report. The report provides the concept of four pillars of education: learning to know, learning to do, learning to be, and learning to live together. The first pillar: learning to know focuses on the development of skills and knowledge needed to take benefits and function in this world. Acquisition of literacy, numeracy, critical thinking, and general knowledge are some of the examples. The second pillar: learning to do highlights the learning of skills that would enable individuals to effectively participate in the global economy and society. It is the acquisition of applied competencies linked to professional success. The third pillar 'learning to be' emphasizes the learning that contributes to a person's mind, body, and spirit. The fourth pillar 'learning to live together' places emphasis on the development of social skills and values such as respect and concern for others, and the appreciation of cultural diversity (Delor's, 1996; in Bhattarai, 2019, p. 8). UNESCO's Education for Sustainable Development Initiative (2012; in Bhattarai, 2019, p. 8) added one more pillar: learning to transform oneself and society. When individuals and groups gain knowledge, develop skills, and acquire new values as a result of learning, they are equipped with tools and mindsets for creating lasting change in organizations, communities, and societies (Bhattarai, 2019, p. 8). Bhattarai (2019, p. 9) in his study has proposed that if Nepal incorporates the Triple Helix Model with five pillars of education in TVET curricula then it would support in stopping forceful migration abroad in search for job opportunities.

### **Teaching**

In this case, the decision process can be described as a problem-solving or invention process. As is to be shown later, the problem-solving process is the place where creativity comes into play. But beforehand, the concept of creativity must be defined. Creativity is normally discussed in the context of the characterizations of creative products, creative processes, and creative persons (Funke, 2000; in Leydesdorff, 2013). Creative products are developed by creative persons in a creative process and are normally (Linneweh, 1978; Schlicksupp, 1999; Sternberg & Lubart, 2002; in Leydesdorff, 2013) characterized as new, i.e., different from already existing products and as useful and practical at the same time.

In order to describe how a creative disposition may influence teaching, it is important to have a look at the process which takes place before a teacher acts, independent whether it is an act of designing lessons or an act of interacting in class. In both cases, this process preceding action is a decision process that results in the decision on how to act. To describe this process in more detail, it can be divided into three sub-processes (Hanke, 2011; Leydesdorff, 2013): (1) the subprocess of perceiving the environment,

(2) the subprocess of activating possibilities of how to act, and (3) the subprocess of choosing one of these possibilities (Leydesdorff, 2013). Each of these three subprocesses is influenced by internal and external conditions. External conditions are those aspects of the environment that teachers perceive, e.g., location, media available, number of pupils, etc. Internal conditions are the teachers' knowledge (Neuweg, 2011; in Leydesdorff, 2013), their beliefs (Pajares, 1992; in Leydesdorff, 2013), their experiences, their emotions (Hascher & Krapp, 2009; in Leydesdorff, 2013) and motivation (Krapp & Hascher, 2009; in Leydesdorff, 2013), their skills, etc., and perhaps their creative disposition as well (Hanke et al., 2011; in Leydesdorff, 2013).

According to Leydesdorff (2013), concerning teaching, a creative disposition may influence the way that teachers act because creativity influences the decision process that precedes action. As mentioned above, it can be assumed that creative people are able to perceive (subprocess 1) their environment differently because they do not rely only on their schemata. Additionally, they will also be able to create new but nevertheless useful possibilities of how to act and do not only activate their existing schemata (subprocess 2). Concerning the third subprocess of the decision process, it is assumed that a creative disposition may lead to a different evaluation of the possibilities and therefore to a different choice of how to act.

The knowledge as well as the beliefs of a teacher influence the way teaching takes place and the results of the teaching process (Pajares 1992; Neuweg 2011; in Leydesdorff, 2013). But knowledge and beliefs are not the only factors influencing the teaching process. Since under certain conditions teaching can be described as a problem-solving process, i.e., as an invention process, it seems probable that the creative disposition of the teacher may be another factor that influences the teaching process (Hanke et al. 2011; in Leydesdorff, 2013).

## **Learning**

Learning and capability/competence can be seen as linked ideas. Competence is an ability to single-loop learn with respect to use and development of technology. Capability is the ability to double-loop learn with respect to use and development of technology while dynamic capability is an example of triple-loop learning (Savory, 2006).

As per Savory (2006), applying three levels of learning to the RBVF (resource-based view of firm) suggests three parallels:

- a. Single loop learning relates to the concept of competence. Competence is based on the development of the ability to operate with set conditions, making adjustments accordingly. Thus, competence in an area such as stress analysis can be seen as based on single loop learning to apply the methods of analysis in new situations.
- b. Double-loop learning relates to the concept of capability as it is concerned with re-organizing following a reassessment of the underlying assumptions of a situation. Thus, the capability to reconfigure what and how competences are used within specific settings requires the application of double-loop learning.

c. Triple-loop learning relates directly to dynamic capability. It requires the understanding of not just how to configure sets of competences, but also the way new competences can be acquired. There is a significant requirement for dynamic capability to encapsulate effective and critically operated knowledge management practices.

### **Future Universities**

In the last two centuries, there have been several revolutions in university missions globally. The first academic revolution in the 19th century in the US made research an explicit academic mission-learning and teaching (Jenks & Riesman, 1968; in Sobaih & Jones, 2015) and is by no means finished in many universities worldwide (Etzkowitz, 1998). Despite continuing industrial growth, universities in some developing countries remained resolutely focused on the first university mission and have not embraced the second mission (research) in the same way as universities in developed countries, e.g., US (Etzkowitz & Leydesdorff, 2000). In the late 20th century, a second revolution took place, notably in the US and some parts of Europe and Asia, to include issues relating to economic and social development as a part of a university 'third mission' (Etzkowitz, 1998; in Sobaih & Jones, 2015). In the early 21st century, a third academic revolution took place-again in the US and Europe-based upon the entrepreneurial university concept embedded in the Triple Helix Model of university-industry-government reciprocal relations (Etzkowitz & Viale, 2010). Schofield (2012) explained that entrepreneurial universities have become the centers of gravity for economic and social development and knowledge creation. The rise of an entrepreneurial university model that incorporates classic ivory tower and Humboldtian elements with a culture of entrepreneurship, innovation, and technology transfer. The emergence of polyvalent knowledge, in such areas as biotechnology, computer science and nanotechnology, that is at one and the same time theoretical and practical; patentable and publishable (Viale & Etzkowitz, 2010, p. 4).

Alexander and Manolchev (2020) placed the Classic Humboldtian model of the world's research intensive (RI) or research-led universities (Classic: RI) close to the origin point, as the most structurally constrained and, as noted by Alexander & Miller (2017; in Alexander & Manolchev, 2020) the least responsive to demand pressures. Also scoring low on structural flexibility, the above-mentioned scholars place former technical or polytechnic institutions (in the UK named the 'new' or '92 group of universities') slightly further along the structural flexibility and demand responsiveness axes. This is due to the commercial, competitive and efficiency pressures that they have faced in the past 15 years (Cranfield and Taylor, 2008; in Alexander & Manolchev, 2020), brought about by their wider range of programs (such as foundation degrees or professional-body recognized qualifications) and greater onus on employment-readiness and the transition into work (Alexander & Manolchev, 2020).

Universities, or HEIs in more general, have three main functions: teaching and education, research (research and experimental development, R&D), and the third mission activities, for example, innovation (Campbell & Carayannis, 2013b, p. 5; in Carayannis

& Campbell, 2014; Carayannis & Campbell, 2018). In reference to “arts universities,” now the question and challenge arises, whether, to which extent and in which way the arts universities differ from the (more traditional) universities in the sciences. Arts universities obviously place an emphasis on the arts, and the arts are not identical with the sciences. However, arts universities frequently make references to the sciences, thus also arts universities can express competences in teaching and in carrying out research in the sciences. The other major challenge of arts universities is to engage in “artistic research” and “arts-based innovation.” By this, arts universities (and other higher education institutions in the arts) are also being linked to and are being interlinked with national innovation systems and multilevel innovation systems. This widens the whole interdisciplinary and transdisciplinary spectrum of higher education systems. Hybrid and innovative combinations of universities of arts and universities of the sciences are possible and indicate organizational opportunities for promoting creativity (Campbell & Carayannis, 2013b, p. 5; in Carayannis & Campbell, 2014; Carayannis & Campbell, 2018).

Placed higher on the structural flexibility axis than the Classic model but not significantly higher on the demand axis, the need for employment-readiness is even greater for Entrepreneurial universities. This model represents an extension of the current model of Further Education Colleges which, in certain instances, are delivering university-level teaching. Also in this category are non-full-service institutions (such as some specialist Management Colleges/Academies), or others who lack Research-degree Awarding Powers. Thus, we envisage Entrepreneurial universities to be working directly with employers, perhaps delivering apprenticeships, T-Level qualifications and aligned with the nations’ skills policy (Gallagher and Reeve (eds.), 2018; in Alexander & Manolchev, 2020). At the opposite-corner of the framework, combining high-levels of responsiveness (e.g., a digitally enabled model) but lower levels of structural flexibility, is the Interactive university. This model is built around speaker/knowledge-replicators and applied knowledge disseminators, relying on knowledge creating (Classic) institutions to sense demand signals from the market and to create new knowledge to fill these demands. This reliance on ‘classic’ sources of knowledge-creation renders platform universities relatively structurally tied, as diffusers of knowledge and ‘observatories’, rather than research houses.

### Figure 1

#### *University of the Future*

2 <sup>nd</sup> Order Categories	University of the Future
Wicked problem focused	
Cross-disciplinary, systems-thinking	Platform
Embracing technology and virtual business models	
Enterprise/ Employability-focused	
Real-life skills for ‘studentpreneurs’	Entrepreneurial
Community impact	

Technology and AI focused	
Knowledge co-created by students, employees, technology	Interactive
Fields and subjects change with rise of AI	
Knowledge-creation focused	
Connecting research and education	Classic (Poly and RI)
Knowledge originates in academia and disseminated outside	

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*Note.* Alexander and Manolchev (2020).

## Conclusion

The Triple Helix as a model refers to the interaction between three institutional spheres i.e., academia, industry, and government is an internationally recognized model for understanding entrepreneurship, the changing dynamics of universities, innovation, and socio-economic development which is the new outcome of the 1990s. Henry Etzkowitz and Loet Leydesdorff (1995, 1997, 1998, 2000, pp. 11-112) propounded a theory known as Triple Helix which has become a research hub (Hattangadi, 2022). The term ‘helix’ is ‘sphere’ and the need for their collaboration for sustainability gave birth to the concept of helix models that came into existence in different periods of industrial revolution. The First Industrial Revolution (1784), the Second (1870) and the Third (1969). Likewise, each academic revolution is mirrored by an industrial revolution. 1) First academic revolution-19th century -learning and teaching; 2) Second academic revolution-20th century-Economic and Social Development; and 3) Third Academic revolution-21st century- Entrepreneurial University- Triple Helix (Sobaih & Jones, 2015, p. 163). In the first industrial revolution, knowledge was little formalized, made of practical know-how generated by a series of individual experiments and trial and error. As a result, there is little collaboration inside the university and almost no collaboration between the university and industry. Hence, this model is a single helix (Viale & Etzkowitz, 2010, p. 599). In the second industrial revolution there was weak interaction with the government and this model is the double helix. Hence, the Triple Helix Model came into existence.

Etzkowitz and Leydesdorff (2000) distinguish three types of Triple Helix Models, namely the 'statist model', the 'laissez-faire model', and the 'balanced model'. The path to the Triple Helix begins from two opposing standpoints: a statist model of government controlling academia and industry, and a laissez-faire model with industry, academia, and government separate and apart from each other, interacting only modestly across strong boundaries. After that, knowledge production has become the part and parcel of the Triple Helix studies which are based on different modes of knowledge production, and they are “Mode 1” and “Mode 2”.

Gibbons et al. (1994/2010) defined Mode 1 as “academic excellence” and Mode 2 as “problem-solving.” Similarly, technology transfer and knowledge transfer are often used interchangeably as technology transfer involves the creation and uptake of new knowledge, while the creation and uptake of new knowledge usually imply the use of technology (Amesse & Cohendet, 2001; Gopalakrishnan & Santoro, 2004; Oliver &



Liebeskind, 1998; in Landry, Amara, & Quimet, 2007, p. 563).

The capitalization of knowledge happens when knowledge generates an economic added value. Knowledge can be subdivided into the categories ontic and deontic (Viale, 2010). Ontic knowledge analyses how the world is, whereas deontic knowledge is focused on how it can be changed. Therefore, the term "knowledge industry" to describe in the context of his new idea of the knowledge economy was suggested. Knowledge industries are those industries which are based on their intensive use of technology and/or human capital. Some industries that are included in this category include education, consulting, science, finance, insurance, information technology, health service, and communications (Nyiri, 2002). Similarly, there is a concept of innovation used extensively in this study which may mean "change" only or can also refer to an "improvement" or "betterment." Innovation is a complex process involving a significant number of actors and sources of learning, knowledge, and skills (EU, A Background Paper, 2008; in Bouraoui et al., 2011). This study of the Triple Helix Model strongly emphasizes collaboration between science and technology. Likewise, social network theory is an umbrella term for theories that focus on individuals, teams and organizations, and the web of interpersonal relationships that both constrain and enable human action in these social systems.

Finally, in the last two centuries, there have been several revolutions in university missions globally. Schofield (2012) explained that entrepreneurial universities have become the centers of gravity for economic and social development and knowledge creation. Universities, or HEIs in more general, have three main functions: teaching and education, research (research and experimental development, R&D), and the third mission activities, for example, innovation (Campbell & Carayannis, 2013b, p. 5; in Carayannis & Campbell, 2014; Carayannis & Campbell, 2018).

If the disjuncture between theory and invention is accepted, the appearance of entrepreneurial scientists is an anomaly (Aitken 1976; in Etzkowitz, 2012). The phenomenon of academic scientists commercializing must be one that goes beyond the availability of investment funds since earlier generations of scientists, such as Pasteur and the Curies, seldom took advantage of commercial opportunities (Etzkowitz 1983). The first phase of entrepreneurial science is the internal development of academic research groups as "quasi-firms." The second phase refers to academic participation in the externalization and capitalization of knowledge in tangible products and distance learning courseware. As universities spin-off for-profit entities from their research and educational activities, and fund some of their own research, they shift their institutional focus from eleemosynary to self-generation. The ability to balance among multiple sources of support, including industry, state and local government and self-funding can be expected to increase the independence of the university.

The Triple Helix Model provides an incentive to seek unevenness between the institutional dimensions in the arrangements and social functions performed by such arrangements. The friction between the two layers (based on knowledge of expectations and institutional interests) and between the three domains (economics, science, and

politics) provides a wealth of opportunities for solving puzzles and innovation. It is noteworthy to understand that the Triple Helix Model is the focus of the operational strategy to promote regional development and knowledge-based economies. Likewise, markets and sciences operate at a global level, not in line with stimuli confined to institutions and inter-institutional agreements. Therefore, the Triple Helix Model is a neo-evolutionary model of possible synergies between functions such as wealth creation, knowledge production and government regulations, which are the three helixes (Leydesdorff, 2012). This is formulated as a model for helping with the explanation of a phenomena (Smith & Leydesdorff, 2012).

The Triple Helix Model was tested and successfully implemented in developed countries and the model is seen to be adapted gradually in developing countries too. This shows the popularity of the Triple Helix Model throughout the world. The countries where this model has not been studied and implemented yet, are advised to develop this model in any form of Triple Helix Model as indicated by Bhattarai (2019). This study will be helpful to those who are involved in academia, industry, and policy makers. Research on the Triple Helix Model should be continued in academia.

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## International Migration in Nepal: Rates, Drivers and Impacts

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### **Abstract**

*Migration is the process of change in usual place of residence which is taking place both as internal and international having diverse short-term and long-term outcomes. This paper explores these outcomes by analyzing mainly the international migration rates and drivers in Nepal. Using the secondary sources of data, this paper first gives an account on how migration rate is calculated which is a rigorous process and for which authentic data are needed by utilizing the verified sources of data. The paper then highlights the social, demographic, economic, environmental and political drivers of migration. Some drivers primarily influence migration decision-making in the areas of origin while others influence them to pursue for betterment of life. Some more push and pull factors, mainly the disasters and conflicts as 'push' and growing student migration as 'pull' have also drawn a larger and growing attention of policy makers. Nepal being one of the labour sending countries to Malaysia and gulf countries makes its almost one-third of the economy through remittance. Problems related to livelihood and quest for life have been the usual phenomena which are analyzed in this article as drivers. The paper concludes that there is no association between the types of migration drivers and their impacts. Whatever the drivers are, Nepali people migrate to access improved economic and employment opportunities.*

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## Introduction

Migration is defined as the process of change in usual place of residence (IOM, 2019). With the growing development paradigms with regards to both infrastructure and technology migration is taking place both as internal and international and the outcomes of them are seen as long term and seasonal, diaspora, student migration, travel for family reunion and visits.

The factors that lead people to migrate, voluntarily or involuntarily, permanently or temporarily, and that perpetuate movement once it has begun, are commonly referred to as “drivers” of migration. People have always moved in search of better living conditions for themselves and for their loved ones. The two major drivers were the fundamentals of the ‘push and pull’ theory, proposed by Lee (1966) encompassing economic, environmental, social and political factors pushing out from the individual homeland and attracting him/her towards the destination country (Castelli, 2018). Different social, demographic, economic, environmental and political drivers impose people to move. Whereas some drivers primarily influence migration decision-making in areas of origin (Castles et al., 2016), improved physical facilities in the destination also attract more and more people. The push factors are due to the governmental imbalances termed as macro drivers of mobility. Other push factors including fears of disorder or of persecution on grounds of race, religion or politics in the areas people live and inequalities are the meso drivers of mobility (Dubey, 2015).

Recruitment of Nepali youth by the British East India Company during the Gurkha War from 1814 to 1816 is known as the first record of Nepali youths' migration to abroad (Kansakar, 2003). No authentic record is available, however. The available documentation shows that during the First World War, over 200,000 of the country's male youths were recruited by the British Army and left Nepal (Khatiwada, 2014).

Over time, it became increasingly common for young Nepali to move abroad in search of jobs and education, becoming a livelihood strategy for a large part of the rural population in Nepal. Recent trends have been seen Nepali migrating to the Gulf countries and Malaysia for work. In the last decades, over four million labour permits were issued by the Government of Nepal for these migrant workers and many others have left Nepal on student or visitor visas. An estimated five million Nepali are employed in foreign countries, of which around 40 per cent are in India, while the remaining 60 per cent are in other countries, primarily the Gulf, Malaysia, Lebanon and the Republic of Korea (MoLESS, 2018). The frequent flow of Nepali and Indian workers in one another country is very high, this data is unrecorded not only by the major surveys of Nepal but also by the population censuses (MoLESS, 2022).

Nepal has observed a significant increase of absent population over the two most recent census periods. According to 2001 Population and Housing Census, 762,181 persons were reported to be “absent”, meaning not residing in Nepal which increased by more than double, that is, 1,921,494 in 2011 (CBS, 2012) and 2,190,592 in 2021 (NSOa, 2023).

Using the secondary sources, the first part of this paper aims to calculate the international migration rates based on 2011 population census. Then it explores various international migration drivers and their impacts using the secondary sources. Although the population and housing census 2021 report has come out, the official rates of migration by National Statistical Office is still in planning and thus this paper uses these rates based on 2011 population and housing census.

### Methods and Materials

As is the case for most countries in the world, data on migration that is available in Nepal is limited and fragmented with identified gaps. Migration data is not comprehensively collected and recorded by the Government of Nepal. Rather, varying sources of demographic and other data need to be examined to extract relevant migration related information. The UN Statistics Branch has recognized that, worldwide there are “huge gaps at country level” which need to be addressed in terms of migration data (UN, 2019). In general terms, there are three main sources of migration data, each of which have their strengths and weaknesses. These are shown in Table 1.

**Table 1**

*Sources of Migration Data, Strengths and Limitations*

Source	Examples of Source	Strengths	Limitations
Statistical data: Collects data for the creation of official statistics. In Nepal, NSO is the responsible entity.	Census	Universal, cross-country comparability, socio-economic characteristics, details data on small population groups	Infrequent, costly, difficult to administer, lack of information on causes and consequences, limited questions on migration, unreliable emigration and immigration data.
	Household surveys	Information on causes and consequences, flexibility with questions, possibility for timely data, can target specific groups	Issues with sample size and coverable, unreliable source of emigration data (e.g. where whole households have emigrated), can be costly, migration may not be main focus
Administrative data: Collects data primarily to support administrative processes rather than to produce official statistics.	Visa/residence/work permit	Data is already being collected on an ongoing basis, therefore inexpensive and usually timely, covers a broad range of issues	Definitions, coverable and availability are not comparable between countries or even among Ministries in the same country. Does not cover undocumented residents or irregular migration. Records registration processes not actual movements.
Innovative data	Social media	Wider publicity	Validity and reliability

*Note.* Migration Data Portal (2019).



8.	Absentee population	Y	Y	Y	Y	Y	Y	Y	Y
9.	By age, sex			Y		Y	Y	Y	Y
10.	By VDC/ Municipality						Y	Y	Y
11.	By education						Y	Y	Y
12.	duration of absence				Y	Y	Y	Y	Y
13.	reason for absence			Y		Y	Y	Y	Y
14.	Absent within country but another district	Y	Y	Y			Y	Y	Y
15.	Destination abroad by sex	Y	Y	Y	Y	Y	Y	Y	Y
16.	Age at time of absence				Y	Y	Y	Y	Y
17.	Citizenship		Y	Y	Y	Y	Y	Y	Y
18.	Nepalese by sex, age		Y	Y	Y	Y	Y	Y	Y
19.	Non-Nepalese by sex, age		Y	Y	Y	Y	Y	Y	Y

*Note.* CBS (2011); Khatiwada (2014); NSOa (2023). Y = Yes; blank = No (not included).

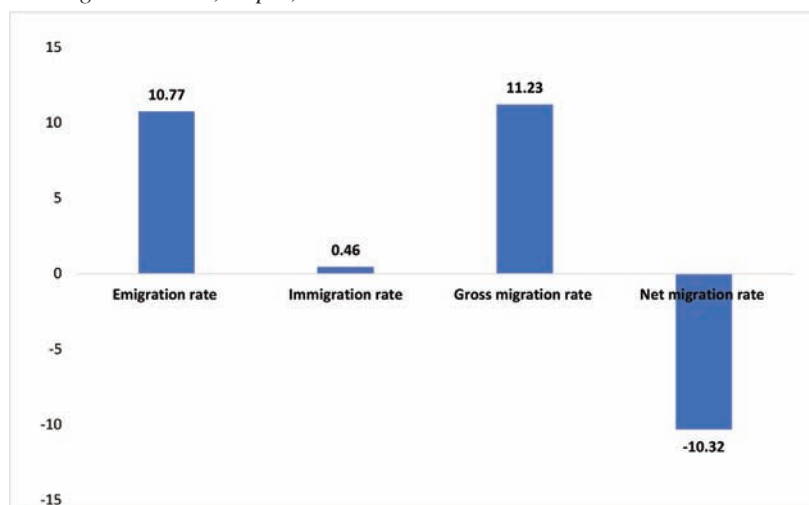
## Discussion of Findings

### Migration Rates

Calculating migration rates is a recent trend worldwide as a growing mobility observed in connection with foreign labour works. However, no authentic data for calculation are available. Population Reference Bureau PRB (2006) introduced the concept of calculating immigration and emigration rates. However, it does not categorically specify the sources of data whether to use census or vital statistics or else in this respect. Using the 2011 population census data, CBS has used absent population to calculate emigration rate and foreign-born population to calculate immigration rate (CBS, 2012; Khatiwada, 2014).

### Emigration Rate

Emigration rate is defined as the number of emigrants over a given period divided by the person-years lived by the population of losing country over that period (mid-year population) is termed as emigration rate. It is expressed as number of emigrants per 1,000 populations (PRB, 2006). Emigration rate for 2011 is estimated at 10.77 per thousand populations.

**Figure 1***International Migration Rate, Nepal, 2011*

*Note.* CBS (2014) Adopted from the report of Central Bureau of Statistics (2014).

### **Immigration Rate**

Immigration rate is defined as the number of immigrants over a given period divided by the person-years lived by the population of receiving country over that period (mid-year population), expressed as number of immigrants per 1,000 populations (PRB, 2006). Immigration rate from NPHC 2011 data stands at 0.46 per thousand populations.

### **Gross Migration Rate**

The number of immigrants plus the number of emigrants over a period, divided by the person-years lived by the population (mid-year population) of the receiving country over that period is known as gross migration rate. It is expressed as gross number of migrants per 1,000 populations (PRB, 2006). The gross migration rate for 2011 is estimated at 11.23 per thousand populations.

### **Net Migration Rate**

The number of immigrants minus the number of emigrants over a period, divided by the person-years lived by the population (mid-year population) of the receiving country over that period is known as net migration rate. It is expressed as net number of migrants per 1,000 populations (PRB, 2006). The net migration rate for 2011 is estimated at -10.32 per thousand populations.

### **Drivers of Migration in Nepal**

While migration is also for seeking better economic opportunities, among the poor this is often primarily a survival strategy who migrate because of a crisis to the survival of their families and communities. More than 8.1 million Nepali live in poverty with rising inequalities such as Gini coefficient being 0.49. Women and girls are more likely to be

poor, despite the significant contribution they make to the economy, especially through unpaid care and household work (HAMI, Oxfam & SAAPE, 2018). Destruction of livelihood options due to war and conflicts occurred in Nepal for 10 years, climate and environmental crises emerged due recurrent floods, landslides and earthquake have been the major drivers of migration in Nepal. While the poor are forced out across state and national borders, they often face hostility in the migration destination.

Nepali migrant workers pursuing labour work in abroad without caring of their safety must face up to loss of democratic rights, xenophobia, absence of any social security protection, and the loss of a protective community. The most vulnerable sections are those who are weakest in traditional societies – often women and children, religious minorities and the socially disadvantaged (SAAPE, 2019).

### **Demographic and Socio-economic Drivers**

One of the major issues rising in Nepal is unemployment and underemployment which have significantly contributed to poverty rates in Nepal. In 2016, the unemployment rate was around 3.4 per cent. Eventually, the unemployment status of the people leads to poverty. Of the people living in Nepal, 25 per cent are living below the poverty line, having just U.S. 50 cents per day. This makes Nepal one of the poorest countries in the world (Merchant, 2018).

The number of tertiary students in Nepal has increased by 407 per cent between 2000 and 2013, from 94,041 students to 477,077 students in 2013. Since then, however, the number of students has leveled off and fallen to 361,077 students in 2016. The overwhelming majority of these students (88.3%) were enrolled in bachelor's programs in 2016. The number of graduate enrollments remains small and accounted for only 11.3 per cent at the master's level and less than 0.5 per cent in advanced graduate and doctoral programs. In 2010/11, fully 80 per cent of higher education institutions (HEIs) offered only Bachelor's programs, while 19 per cent also offered Master's programs and only the main university campuses (less than one per cent of all campuses) had PhD programs in place (Dilas, Cui, & Trines, 2018).

The major issue is the lack of tertiary level education in Nepal which motive the students to migrate. The other thing is the job placement that the universities offer to the skilled population. Although, the statistics seem to be low; these students are also not getting employment opportunities in the country which drives them to abroad where there are both higher education as well as better employment opportunities. The highly prevalence of favoritism and nepotism in the country like Nepal is the other cause that influence skilled personnel to move (ILO, 2016) .

### **Environmental Drivers**

Environmental factors, including those related to climate change and natural disasters, directly and indirectly impact the resilience and vulnerability of individuals, households and communities, and may lead to migration (Castles et al., 2016). With an already struggling economy and low political stability level, earthquakes in Nepal are another factor of the country's instability (Merchant, 2018). These slows the undermining

livelihood stocks of the people leading to lack of productive land, increasing hunger and deteriorating health of people. Thus, it results in movement of people from the place of origin.

It is also accepted that the driving causes of such climate changes started with the industrial revolution, are mainly anthropogenic in nature and are largely due to the emission of greenhouse gases (CO<sub>2</sub>, methane and nitrous oxide) by industrial activities from carbon-based energy. It has been estimated that 97 per cent of such emissions occur in industrialized rich countries, leaving a mere 3 per cent emission coming out from low-income countries (Castelli, 2018).

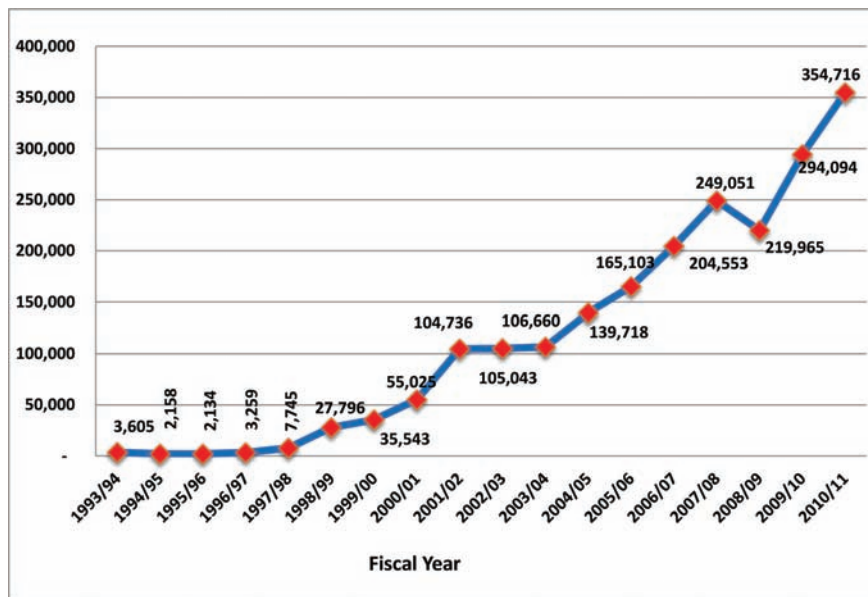
### Political Drivers

Nepal has experienced several civil wars and the most recent one, People's War, ended in 2006 and continued for 10 years. This war influenced heavily on poverty rates, healthcare and the possibility of a healthy job market (Merchant, 2018). The lack of respect for international human rights and humanitarian law has compounded growing displacement of many because of their deteriorating living conditions. The vast majority of people displaced by conflict stay within their country (Castelli, 2018).

While just over 3,000 labour permits had been issued at the beginning of the insurgency, this figure rose dramatically to 165,103 by the end of the insurgency in 2005/6. The upward trend of foreign labour migration continued after the conflict ended (Sijapati & Limbu, 2012). Figure 2 shows the labour permits issued during and a few years after the insurgency.

**Figure 2**

*Surge in Labour Permits During the 10-Year Insurgency*



*Note.* Adopted from the calculation based on DoFE data (2011).



Not only the poor and the vulnerable people turned displaced but also the leaders and workers of political parties displaced during the armed conflict. Their issues of return and live with dignity in their respective places, their rights to claim/reclaim homes, land and property seized and carry out political activities without any hindrance became a crucial issue during peace process in Nepal (Khatiwada, 2016).

### **Impacts of Migration**

Nepal has been experiencing multi-faceted impact of migration on various sphere facing impact of both internal and international character. In recent years, the international migration has a cause to promote substantially the internal migration. The rural households due to at least one member away for earning purpose do not only receive money back home by their migrant members but also get exposed the advantages of migrating to the urban areas or nearby town. As a result, they take decision to abandon the birth place and come to a new destination (Khatiwada, 2006).

There has been a steady pattern of migration in Nepal from rural to nearby district headquarters and from hill and mountain regions to Tarai which is fertile agricultural area along the southern border of Nepal. The major cause of shift from mountain-rural to a plains-urban society is called “The Great Turnabout” which is causing a great deal of tension in the Tarai (Shrestha, 1989). Furthermore, deforestation, soil erosion and flooding are also some of the problems. Over the past decade, Nepal has seen a ten-fold increase in the number of migrant labourers leaving the country to work abroad, and the majority are youth. Despite the continual rise in the number of people migrating for foreign employment; there is rise in human trafficking, human smuggling, rise in the number of refugees, poverty, health related issues and eventually underdevelopment of Nepal (The Asia Foundation, 2017).

### **Migration and Human Development**

The starting point of human development approach is based on Sen.’s expansion of capabilities, and the main focus of development is well-being of human life by expansion of choices that a person can be and do, such as awareness in terms of education, long and healthy life, and decent standard of living in the community (Ullah, 2017). One of the indicators human development index (HDI). Between 1990 and 2017, Nepal’s HDI value increased from 0.378 to 0.574, an increase of 51.9 per cent. Between 1990 and 2017, Nepal’s life expectancy at birth increased by 16.3 years, mean years of schooling increased by 2.9 years and expected years of schooling increased by 4.7 years. Nepal’s gross national income (GNI) per capita increased by about 111.6 per cent between 1990 and 2017 (UNDP, 2018).

Nepal’s GDP per capita reached to \$1399 in 2023 compared with 866.476 USD in 2017 (NSOb, 2023; CBS, 2018). So, the mobility has created favorable environment for the people to develop and channelize their competencies and skills for the improvement of living standard and wellbeing in terms of educational attainment. Mobility of migrants is an important factor which enhances the education, healthcare services, knowledge, freedoms, and human development (Ullah, 2017).

## **Migration and Economic Impact**

From the views of different philosophers, migration is seen as beneficial for the country. The neo-classical theory of migration explains that migration is the form of optimal allocation of production factors that benefits both the place of origin and place of destination. The balanced growth; reallocation of labour from rural to urban, is considered as prerequisite for economic growth. The free movement of labour creates unconstrained market environment which leads to price equalization among the labours (Reinkowski, 2010).

Similarly, the deterministic theory developed by Zelinsky (1971) explained that the growing per capita income in developing countries is accompanied by higher rates of emigration called migration hump.

In Nepal, in-flow of remittance has been increasing the standard of living, particularly, of people in rural areas and covering basic needs such as food education, health and housing. The remittance inflows increased by 12.5 percent reaching USD 724.05 million in 2023 against the decrease by 17 percent in 2022 (NRB, 2023).

The developed industrial countries are inviting the labour migrants to come and work and this has spurred a never-ending cycle of attracting migrants to migrate and do the 4Ds; dirty, dangerous, difficult (Nicander, 2015) and demeaning jobs that the natives in the receiving countries will not partake in.

As explained by Lewis (1986) and Entzinger (1985) the migrants and their families do not invest their money productively but rather spend their money on “conspicuous consumption” which are non-productive. About 90 per cent of the remittances are spent on everyday consumption like purchase of land, use of remittances to hire workers, labour replacing mechanization, high payment for bride prices, feasts, funerals, construction of pompous and luxurious houses and so forth. Such unproductive expenses are thought to weaken local and regional economies and increase dependency resulting to “leakage of remittance investment” and under-development (Hass, 2016). In absence of remittance, the nation’s economy will be worsened in the future. Since most of the earning is spent on consumption, it has no contribution in capitalization of the economy. No visible improvement can be seen in the nation as a consequence of migration in the future (Dubey, 2015).

## **Migration and Employment/Labour Market**

Nepal's current unemployment rate for youth aged 15-29 is 19.2 per cent which is 2.7 per cent for the whole population. An estimated 400,000 young people are believed to enter the labour force each year (ILO, 2023). These figures justify the worst scenario of unemployment problem in Nepal. On an average the salary of Nepali migrant workers ranges from \$190 to \$900. The highest of it is found in the Republic of Korea, while the lower salaries are found in the Gulf Cooperation Council (GCC) countries. About 1,600 men and women leave the country. The top-five destinations for Nepali migrant workers are Malaysia (40.9%), Saudi Arabia (22.9%), Qatar (20.3%), United Arab Emirates (11.2%) and Kuwait (2.1%) (ILO, 2017b).

The unprecedented increase in foreign labour migration from Nepal has had an impact on various aspects of the economy and society. The national economy is increasingly becoming dependent on remittance as explained in the section of economic impact. While the inflow of money is helping reduce poverty and has become a means of sustenance for hundreds of thousands of families, the number of labour migrant is increasing every year. Growing foreign labour migration in Nepal has seemed to create an imbalance in local labour markets both in origin and destination. For instance, it has been reported that about 30,000 Bangladeshi workers are fulfilling the labour shortage in the brick industry in the Eastern Tarai (Sijapati & Limbu, 2012). The working and living conditions in the destination countries were reported to be very hazardous and diseases, workplace injuries and deaths were common. Unequal wages prevailed among the migrant workers, exploitation by foreign companies in the workplaces are some of the negative impacts that the migrants from Nepal is facing. In most of the workers' agreement paper, their affiliation with a trade union is prohibited that has hindered them their rights (Parajuli, 2015).

There is no social protection rather exclusion, restriction on mobility and travel, withholding of paper and identity for migrant people in host countries (Parajuli, 2015). Nepali female migrants working as domestic workers face multiple forms of abuses-mental, sexual and physical from their employers. The trend of Nepali going abroad using fake documents and through third countries like, India are highly at risk of being the victims of human trafficking (Sijapati & Limbu, 2012).

Nepali migrants face enormous risks when they engage in foreign employment. Besides not being paid on time, working in difficult conditions, being exposed to harassment and abuse such as passports being taken away by employers, Nepali migrants have been dying in ever greater numbers than before. According to the Government of Nepal, 726 migrants died abroad in 2013, which was an increase of 100 persons later year. Many of the deaths were due to cardiac arrest among the young people of age between 20 and 44 years of age (Parajuli, 2015).

In 2017, the workers registered more than 2,000 complaints ranging from fraud, exploitation and physical and sexual abuse by middlemen and foreign employment agents at the Department of Foreign Employment. Some 227 workers stranded across the world appealed to the Nepali Government to rescue them (Shrestha, 2018). Thus, this is how the migration is affecting the employment and labour market of Nepal. The prompt action should be taken by the stakeholders and the authority to boost up the positive impact of the migration in all the sectors.

### **Migration and Social Impact**

Social impact of migration is closely associated with social development. As the success of every society is linked to the well-being, social development aims investing in people. (Brunswick, 2009).

In the South Asian countries like Nepal, the social status of the people is increased when it comes to migrants. The migrants in his/her place of origin are treated better from the

so-called higher caste and class people. It is because they have cash money and can purchase small piece of fertile and grass land. However, migration has some negative aspects in social factors. One of them is "demonstration effects" and 'ratchets' effects.

### **Migration and Health**

Migration has both positive and negative effects on health. Some migrants may be healthier than the population due to the access of better health facilities and climate in the place of destination whereas some remain the victims of chronic patients due to hazards of different kinds. The relationship between migration and health is thus complex and its impact is considerably across migrant groups and from person to person within such groups (Migration Data Portal, 2019). Nepal has experienced an unprecedented surge of a sizeable out-migration of health personnel, especially doctors and nurses, to countries of the global North a sizeable out-migration of health personnel, especially doctors and nurses, to countries of the global North for foreign employment. Older adults often migrate to warmer and better health care destinations like Spain, Florida. In case of Nepal, the older adults especially migrate to Kathmandu valley from rural areas for better health care (ILO, 2017a). So, the movements result in better physical and mental health and longer life for migrants as a consequence of diet changes, access to better health services and safer work (Macpherson, 2000).

The most common is HIV transmission and other STDs among the wives of the emigrants especially those from the India (Gautam, 1999). Moreover, Nepal is facing the problem of "inequitable distribution of health workers"; the health worker-to-population ratio is 0.67 doctors and nurses per 1,000 individuals, which is significantly lower than the WHO's recommendation of 2.3 doctors, nurses and midwives per 1,000 individuals (ILO, 2017a). The high cost of health services, privatization in health sectors, lack of inter-personal relation (IPR) among the patients and health personnel, delay in receiving care are some of the facts that Nepali people are encountered with. (ILO, 2016). The prolonged absence of parents (either father or mother) affects the social-psychological atmosphere within families and exacerbate problems undermining marriage and family stability, relations between generations, and the children's upbringing. The movement to elite countries have emerged malnutrition due to dietary excess, sedentary behavior, obesity, and other chronic diseases in middle- and upper-class population (ILO, 2017a). Similarly, more than one-third of Nepal's children under 5 years are stunted, and 10 per cent suffer wasting due to acute malnutrition. Without a concerted effort to tackle inequality and pursue policies that benefit the many rather than the richest few, the poorest and most marginalized Nepali will continue to be excluded from progress (HAMI, Oxfam & SAAPE, 2018).

### **Migration and Education**

The migrants as the means for the exchange of thoughts, skills, ideas and practices across the place of destination can help to make the place an innovative center. Emigration to developed countries helps to seek tertiary level (higher level) of education. The emigrants can achieve quality education. The way of teaching is among the heterogeneous group (people from different countries). So, there is competitive market

between place of origin and destination. The acquisition of education in foreign countries is as “learning centers” such that individuals may choose to return to their countries of origin in order to apply the skills acquired. Several countries have started to issue a special residence permit to foreign graduates for the purpose of seeking a job, including the United Kingdom, France, Germany. This creates an individual to get placed after attaining higher education (Dustmann & Glitz, 2011).

Statistics show a rise in proportion of Nepali students by almost 46 per cent to around 12,000 members out of the total 190,000 foreign students who had applied for courses in Australia during July-December 2017. While USA had 1.08 million international students as of November 2017, Nepal alone saw a 20 per cent (around 11,607 students) rise in number of its students enrolled for higher education courses in US institutions. Nepal ranked 12 out of the top 25 countries with its students for undergraduate and graduate courses in USA. Nepali students accounted for the highest growth rate of 42.4 per cent for undergraduate courses among all the 25 countries. The mobility of Nepali students is even observed in India. More than 500 Nepali students are pursuing higher education at Sharda University, India (Nepali Sansar, 2017).

Migration results in brain drain and talent shortage in Nepal. The professionals like in the field of medicine and health, technology will remain limited. This sort of practice can cause the hindrance in human development and nation (Dubey, 2015). The educational skills of emigrants may not be easily transferable to the host country’s labour market due to language deficiencies and a highly skilled emigrant is unlikely to command the same wage as a native-born worker with the same educational background (Dustmann & Glitz, 2011).

### **Climate Change, Water Stress and Migration**

Potential pathways from climate change to migration are through increases in the frequency and intensity of weather and climate related risks that include sudden and slow-onset events. Extreme weather events are sudden-onset events that tend to have immediate impact and are the most direct linkages between climate change and migration. The loss of place of residence or economic disruption due to extreme weather events results in population displacement of a largely temporary nature (Banerjee & Misha, 2016). Similarly, natural disasters caused by these sudden-onset events often displace rural populations because of damage to their assets or production losses. Combined with food insecurity and poverty, these impacts contribute to drivers of migration (FAO, 2015).

Despite its relatively small area, Nepal has very diverse climatic conditions, ranging from tropical in the south to alpine in the north. Due to diversity, the country is at higher risk of facing climate related disasters like flood, glacial lakes and glacial lake outburst flood (GLOF), landslides, earthquake, forest fire, drought and famine, extreme temperatures can occur resulting in the movement of people from unsafe place to safer place (Dixit, 2007).

The climate change is increasingly being considered as a significant stress on local

farming in Nepal. Due to the area's rugged topography and the limited availability of land suitable for farming, migration is a more common option for households facing increased food insecurity. Therefore, local farmers predicted that increased climate variability would lead to increased migration (Gautam, 2019).

Seasonal migration is one of many strategies Nepali hill people pursue to cope with the impacts of the natural hazards. Changing land uses and livelihood diversification in Nepal have pushed for centuries the Himalayan herders and farmers to survive in the low hills and inner Tarai. The study further reveals after flowing through the lowland Tarai region of Nepal enclosed in embankments, the river flows over the Koshi barrage and enters North Bihar of India (ICIMOD, 2009).

### **Migration and Left Behind Population**

A central principle of the 2030 Agenda, Sustainable Development Goals (SDGs) is inclusivity; it includes a pledge to "leave no one behind" and to endeavor to reach the furthest behind first. To achieve this, the vulnerable groups must be considered in all aspects of implementing the SDGs and targets. Migrants, children, women are numerous and can be particularly vulnerable group affected by multiple, intersecting forms of discrimination, and therefore deserve particular attention (IOM, 2016).

In the case of migration, the separation of migrants from their families is a stressful event that severs the support network of both migrants and family members of migrants. This is also one of the categories of left behind population. The families must adjust themselves socially, financially and are always concerned about their spouse's work situation (physical and mental) and worried about their relationship. Additionally, most of them who migrate leave behind huge amount of loans for families to pay off, but they do so with the hope of building a happy family and easing of their livelihood. Perceived perception of stress can be modified only with the availability of support system and family resources. Lacking of social support system will lead to the inability to adjust healthily (Thapa et al., 2019).

The other rising issue is socio-psychological anxiety. The whole family cannot afford the cost to migrate that is why, a person must migrate for seeking better jobs such that his/her family would live prosperous life. One of the family members emigrate at a time resulting in eroded family structures and relationships. As described by Emilio (2007); the longer the separation between the migrating parents and their children, the more children lose parents' reference in the management of the household, their authority and their role as providers of love and material care (Ratha, et al, 2011).

Adolescents left behind are also commonly overrepresented in adapting risky behavior, and absence of mothers has been found to be associated with the involvement of children with violence, the abuse of drugs and alcohol as well as reduced school attendance has been observed among children left behind by migrants (Ratha et al., 2011). Thus, it is very important to address these issues as these are the matters of major concern. There are different inventions conducted in international and national level in Nepal.

## Conclusions

Nepal follows the global migration phenomena in terms of migration trends and characteristics, that is, permanent, temporary and seasonal in nature although a general perception is that migration is pre-determined by individual and personal characteristics. Nepal being a sending country, the emigration rate stands at 10.77 per thousand populations against Immigration rate of 0.46 per thousand populations and the gross migration rate of 11.23 per thousand populations. This shows Nepal's net migration rate being -10.32 per thousand populations.

Nepal witnessed an evidence-based driver of migration related to economic, demographic, environmental, social and/or political. Whatever the drivers are, Nepali people migrate to access improved economic and employment opportunities. Whereas some migrate due to poverty, inequality or a lack of fundamental human rights at home as an outcome of both the natural and man-made crises and environmental degradation, for many it also becomes the part of human tendencies. Since many years Nepali both domestic and foreign migration has been a major livelihood option for many Nepalis. Nepal is equally prone to displacement of large number of people due to various natural and human induced calamities which has drawn a larger attention of the policy makers.

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**Demographic Change and Border Security Governance of Nepal:  
An Analysis of Perceptions**

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**Abstract**

*Demographic changes in Nepal have significant implications for national security, particularly border security. The shifting populations, internal migration from rural to urban areas, and cross-border movements have given rise to various challenges like illegal border crossings, human trafficking, smuggling, and other activities that jeopardize security and stability. Despite several efforts, border security continues to be a pressing issue, and there is a lack of understanding of how local-level elected representatives perceive the implications of demographic change on border security. This research primarily aims to analyze the perception of threat among locally elected representatives concerning the root causes of demographic change at their respective local levels. It also seeks to examine their perception of how demographic change affects border security governance and identify the security threats perceived due to such changes. Moreover, the study aims to determine the perceived role of responsible authorities or agencies in mitigating the security risks associated with demographic change. To achieve these objectives, the research follows an analytical approach, gathering perceptions from elected representatives of various local governments. It uses a combination of qualitative and quantitative methods to analyze their views on border security issues arising from changing demographics in Nepal. The focus areas are the Nepalese territories connected to neighboring countries China and India. The primary*

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*data source for the research is local-level government representatives, and the analysis involves thematic exploration of qualitative interviews and quantitative examination of population trends. However, it's important to note that the findings may have limited generalizability, as they are based solely on the perceptions of elected representatives. The study does not include perspectives from security forces or other agencies. The selected areas for the study include regions in Nepal experiencing frequent population decrease, such as Bhotekoshi rural municipality and Jugal rural municipality of Sindhupalchowk district, as well as areas with frequent population increase, including Rajdevi Municipality and Gaur Municipality of Rautahat, Nepalgunj Sub-Metropolitan City of Banke, and Bhajani Municipality and Dhangadhi Sub-Metropolitan City of Kailali District. The study sheds light on the main drivers of demographic change, such as the pursuit of better health, education, employment, and quality of life, and their long-term impact on national and border security. By engaging local-level elected representatives and employing an analytical approach, this research aims to fill the existing research gap and provide valuable information to policymakers for effectively addressing border security challenges arising from demographic change in Nepal.*

## **Introduction**

Demographic change, encompassing shifts in population size, composition, and distribution, profoundly influences various aspects of society (UNFPA, 2017). In the context of Nepal, these demographic dynamics significantly shape border security governance. The challenges associated with border security become more complex when the country experiences demographic shifts, including population expansion, internal rural-to-urban migration, and cross-border movements. It is crucial to comprehend the effects of demographic change on border security in Nepal to effectively address these issues and safeguard the integrity of national borders.

Population growth plays a pivotal role in Nepal's demographic transformation. Factors like high birth rates, improved healthcare, and longer life expectancies have led to steady population growth over time (UNFPA, 2019). Consequently, this population increase places pressure on border security as it leads to heightened demands for resources, services, and opportunities, driving migration patterns within the country and across its borders (Hill et al., 2020). The management and security of borders become imperative in the face of population growth and the associated challenges. Additionally, certain circumstances, such as high mortality, disasters, inadequate healthcare, and pandemic diseases, may cause population declines in specific regions. Internal migration from rural to urban areas is another significant demographic development impacting Nepal's border security. This movement includes refugees, internally displaced individuals, and economic migrants seeking better living conditions due to economic disparities, limited employment opportunities, and improved access to healthcare and education facilities (Mishra et al., 2021). The concentration of populations in metropolitan areas, particularly near major cities and towns, intensifies pressure on border security by straining public services, infrastructure, and leading to an increased likelihood of irregular border crossings (Adhikari & Gurung, 2018). Managing and surveilling border areas become crucial to address the effects of internal migration on

border security.

Despite research on the impact of demography change and border security governance in Nepal, the topic has not been adequately addressed yet. This study seeks to fill a critical gap in the analysis of perceptions regarding the changing demography and the impact of border security in Nepal. The possible impact of cross-border migration on Nepal's border security has been theoretically discussed. Cross-border migrations, along with internal migration, present challenges to Nepal's border security due to its proximity to China and India. The country is vulnerable to various transnational activities, including unlawful trade, human trafficking, and drug smuggling (Bhattarai, 2020). Demographic changes, such as population growth and internal migration, create vulnerabilities that criminal networks exploit for illicit activities (UNODC, 2020). Strengthening border surveillance, enhancing intelligence sharing with neighboring countries, and implementing efficient border control measures are essential to mitigate risks associated with cross-border movements. Addressing the impact of demographic change on border security requires a comprehensive approach. This entails addressing the root causes of population changes, promoting economic development, reducing inequalities, and ensuring political stability in Nepal to minimize the push factors that drive migration, thereby alleviating pressures on border security. Effectively managing migration pressures and ensuring the integrity of Nepal's borders necessitates efficient border control procedures, increased monitoring, and cooperation with neighboring countries. Addressing the underlying causes of demographic change, such as economic disparities and political instability, is vital in managing migration pressures and maintaining Nepal's border security. The research endeavors to explore the perspectives of locally elected representatives concerning border security challenges arising from shifting demographics. Numerous research studies have examined the relationship between changing demographics and border security. While various approaches and viewpoints can be utilized to analyze these perceptions, there has been no research conducted in Nepal specifically focusing on the perception of local-level elected representatives regarding border security. As representatives of local governments, these elected officials play a vital role in addressing the complex issues at the border, including border governance, management, demographic changes, and urbanization in border regions. Therefore, conducting a perception analysis is crucial, as it serves as the foundational step in understanding these multifaceted phenomena.

Specifically, the research questions focus on the causes of demographic change, its impacts, the security threats it raises, and the responsible authorities for mitigating such risks. The study concentrates on local-level areas in Nepal with significantly decreasing and increasing demographic trends, linked to neighboring countries China and India. The research scope includes threat perception analysis of locally elected representatives from Bhotekoshi rural municipality and Jugal rural municipality of Sindhupalchok, Rajdevi Municipality and Gaur Municipality of Rautahat, Nepalgunj Sub-Metropolitan City of Banke, and Bhajani Municipality and Dhangadhi Sub-Metropolitan City of Kailali District of Nepal. The analysis is based on comparing demographic change trends between the latest two censuses of Nepal. To ensure precision in the analysis, this

research focuses solely on the perception analysis of elected representatives of local-level government. The study excludes perception analysis from security forces or other concerned agencies regarding the issue.

The research adopts a mixed-method design, incorporating both qualitative and quantitative data sources. It analyzes how locally elected representatives in Nepal perceive border security challenges due to changing demographics. Findings may have limited generalizability and exclude perspectives from security forces or other agencies. Local-level government representatives (Mayor, Deputy Mayor, Chairperson of Rural Municipality, Vice Chairperson of Rural Municipality, and Ward Chairpersons) are chosen as primary data sources. Data is collected through interviews using a structured questionnaire designed to understand the respondents' perceptions on the causes and impacts of demographic change on border security, as well as the identified security threats. Local-level government is selected as the data source since the major challenges faced in the realm of border security directly impact the local level. Primary data is collected through interviews with selected local level representatives using a carefully designed questionnaire. The research measures the population trends in areas frequently experiencing decreasing demographics connected to China and increasing demographics linked to India. The selected local levels for analysis are Bhotekoshi Rural Municipality and Jugal Rural Municipality of Sindhupalchowk District, which connect to China, and Rajdevi Municipality and Gaur Municipality of Rautahat, Nepalgunj Sub-Metropolitan City of Banke, and Bhajani Municipality and Dhangadhi Sub-Metropolitan City of Kailali District, which connect to India.

The key focus of this research lies in examining the threat perception of the elected representatives. Respondents were asked to prioritize their concerns among fourteen potential threats, and their perceptions of the causes of demographic change leading to rapid migration were also explored. The study identified the respondents' threat perceptions on border security, primarily linked to demographic change, which encompassed economic instability, illegal residence, social and cultural conflicts, ethnical and regional conflicts, organized crime, terrorism, conflicts in border residents, incidents of law violations, development inequalities, religious conflicts, food crises, informal border trade (smuggling), energy crises, and economic inequality. The analysis includes a comparison of demographic change trends between the latest two censuses of Nepal to measure the population shifts in the selected areas. Qualitative data from interviews is analyzed thematically to identify the key causes, impacts, and security threats related to demographic change. The research focuses solely on the perception analysis of elected representatives of local-level government, excluding perception analysis from security forces or other concerned agencies.

### **Theoretical Discussion**

This research is grounded in the theoretical framework of cognitive study of international relations, which emphasizes the importance of both objective reality and actors' understanding in comprehending threats and peace. It acknowledges that security is influenced by how various actors perceive each other, considering multidimensional

factors such as historical facts, relationships, economic conditions, and even global warming's impact on mutual understanding. Specifically, this study centers on the perception of local government officials, delving into how they believe and perceive security issues. The focus lies in understanding the connection between changing demographics in their areas and the subsequent shifts in threats and border security. By doing so, the research bridges the cognitive study of international relations with the constructivist perspective, which places significance on perceptions and their role in shaping security dynamics. The perception of security concerning a specific border is influenced by its symbolic significance, historical traditions, overall image, and contemporary discussions. A notable example is Finland, where the boundary with Sweden is viewed positively despite past conflicts, while the border with Russia is associated with concerns about illegal migration, crime, pollutants, and other threats. Another instance can be observed in the relationship between Russia and Kazakhstan, where mutual perceptions of security act as a significant barrier to cross-border cooperation. Russia tends to view the boundary with Kazakhstan as a source of various threats to national and regional security, such as drug trafficking, Muslim fundamentalism, terrorism, and illegal immigration from Afghanistan and Central Asia. Conversely, Kazakhstan fears potential Russian irredentism in regions north of Russia's territory, which is a shared concern among the political elite and the local population.

The fundamental determinant of demographic change lies in fertility patterns and reproductive behavior (Bongaarts & Casterline, 2013). This critical aspect highlights the significance of individual choices regarding family size, contraceptive use, and desired fertility, which greatly influence population growth or decline. The work of Jones (2017) underscores the complex interplay of various variables, such as educational attainment, access to reproductive healthcare, cultural norms, and gender equality, in shaping fertility rates. Policymakers and researchers must understand these intricate dynamics to devise effective population management strategies.

Mortality rates and life expectancy are equally pivotal determinants of population change (Preston et al., 2018). Improvements in sanitation, nutrition, and healthcare have led to declining mortality rates worldwide, significantly impacting population structures. Bongaarts (2017) emphasizes that the rise in life expectancy has far-reaching implications for workforce dynamics, healthcare systems, and social welfare programs. These critical issues necessitate urgent attention from policymakers to address the challenges of an aging population. Population change is extensively influenced by socio-economic variables and development (Lutz et al., 2018). The critical role of education, income levels, employment opportunities, and social policies in shaping demographic transitions cannot be underestimated. Cohen (2019) highlights the correlation between higher levels of education, particularly among women, and lower fertility rates with delayed childbearing. Understanding these intricacies is crucial for policymakers and stakeholders in crafting effective strategies for sustainable development.

Economic development and urbanization significantly impact migration patterns, reshaping population distributions across regions (Bilsborrow, 2013). This critical aspect underscores the need to comprehend population dynamics and implement

sustainable development strategies, considering the ever-changing socio-economic landscape. The emerging determinants of population change are environmental pressures and climate change (Hunter et al., 2018). The critical work of Crescenzi et al. (2017) highlights how natural disasters, resource scarcity, and environmental degradation can lead to population displacement and migration. Rising sea levels and extreme weather events pose particularly significant challenges to coastal populations, as emphasized by Wadsworth (2020). These pressing environmental issues require immediate attention to mitigate their adverse effects on global populations.

### **Fertility, Mortality and Border Security**

Birth and death rates have significant implications for border security, as they directly influence population growth, demographic composition, and internal migration patterns. Understanding these demographic dynamics is crucial for formulating effective border security policies and strategies. High birth rates contribute to population expansion, placing increased pressure on border regions in terms of resource demands and services (UNFPA, 2019). Rapid population growth can lead to overcrowding in urban areas, straining infrastructure and public services, which may inadvertently exacerbate migration patterns within the country and across its borders (Hill et al., 2020). This migration, driven by population pressures, can potentially impact border security as authorities grapple with the management of cross-border movements and unauthorized border crossings.

On the other hand, death rates and life expectancy are also pivotal factors shaping population dynamics. Improvements in healthcare, nutrition, and sanitation have led to declining mortality rates globally (Preston et al., 2018). Longer life expectancies can alter population structures and contribute to an aging population. An aging population can pose unique security challenges, such as changes in workforce dynamics, strain on healthcare systems, and increased demand for social welfare programs (Bongaarts, 2017). The interplay of birth and death rates, along with other demographic variables, can lead to complex internal migration patterns. The movement of people from rural to urban areas in search of better opportunities can concentrate populations in specific regions, affecting border security by creating potential vulnerabilities in metropolitan areas near major cities and towns (Adhikari & Gurung, 2018). These migration patterns also contribute to social and cultural conflicts and economic disparities, impacting the overall stability of border regions.

### **Migration and Border Security**

Migration and border security are intricately connected, especially when facing the increasing threats associated with migration. Demographic changes such as population growth, internal migration from rural to urban areas, and cross-border movements have a profound impact on border security in Nepal (UNFPA, 2017; UNFPA, 2019; Mishra et al., 2021; Bhattarai, 2020). It becomes difficult to maintain efficient border security procedures when migratory flows increase. The hazards to national security and sovereignty increase as unauthorized border crossings become more prevalent (Hill et al., 2020). This necessitates additional border control measures, such as the use of



advanced technology, enhanced monitoring, and the construction of border outposts (Kafle, 2018).

Moreover, the rise in smuggling and human trafficking activities poses a grave concern. Criminal networks exploit demographic changes, taking advantage of population growth and internal migration, thus threatening security and stability (UNODC, 2020). To combat such transnational crimes effectively, concerted efforts must be made to strengthen border control mechanisms (Adhikari & Gurung, 2018). The increasing migration pressures also strain existing resources and infrastructure. The demands for resources, services, and opportunities associated with population growth can drive migration patterns within the country and across its borders (Hill et al., 2020). To address these challenges, Nepal recognizes the importance of strengthening border control personnel and improving infrastructure along the borders (Shrestha, 2020).

As a result of population shift, border security challenges must also be managed through international cooperation and coordination with adjacent nations. Nepal actively participates in bilateral and multilateral actions to improve information sharing, information exchange, and coordinated action against transnational crimes (Ministry of Home Affairs, Nepal, 2021; Pokharel, 2017). Instances of these initiatives include cooperative border talks and involvement and active participation of Nepal in regional organizations like BIMSTEC and SAARC. It is crucial to remember that border security and migration also have wider social and political implications. Migration and demographic shifts have an effect on a country's identity, culture, and economic resources, which can result in social conflicts, public debates, and even social instability (Bhandari et al., 2022). Reducing migratory pressures and boosting border security depend on addressing the root causes of the demographic shift, such as economic inequality and political instability (Bhandari et al., 2022).

Border security and migration are intertwined, and the threats brought on by migration make it more difficult to maintain efficient border control measures. Unauthorized border crossings, human trafficking, smuggling, resource depletion, and social and political ramifications all call for comprehensive strategies that include innovative technologies, elevated surveillance, collaboration with neighboring nations, and addressing the underlying causes of demographic change. Understanding and strongly addressing these issues will enable Nepal to safeguard its national interests, advance regional stability, and efficiently manage its borders.

### **Issues and Challenges in Border Security of Nepal**

Nepal, nestled in the heart of the Himalayas, shares borders with two regional powers, India and China. Given its geopolitical position and the potential implications of cross-border operations, Nepal lays utmost significance on maintaining its national borders. Nepal recognizes the significance of robust border management and surveillance systems in maintaining security. It has implemented various measures, including the deployment of security forces and the establishment of border outposts (Kafle, 2018). These initiatives aim to facilitate lawful cross-border trade and human movement while discouraging transnational crimes including human trafficking, smuggling, and illegal

border crossings (Government of Nepal, 2019). By addressing socioeconomic disparities and promoting inclusive development, Nepal aims to enhance border security and reduce vulnerabilities that can be exploited by illicit actors.

However, Nepal faces unique challenges in maintaining its border security. The rugged Himalayan terrain creates geographical constraints, hindering infrastructure development and effective surveillance (Pant, 2022). Potential invaders are able to take advantage of the geographic obstacles since the difficult terrain hinders access and reduces the effectiveness of patrolling efforts (Pant, 2019). Porous and open borders with India pose a significant challenge, as insufficient infrastructure and border management tools contribute to the porosity, allowing illegal activities to thrive (Poudyal, 2019). The absence of fencing, checkpoints, and surveillance systems contributes to the porosity of the border, making it challenging to monitor and control illegal activities (Poudyal, 2015). Cultural and ritual exchanges among the population surrounding both sides of the border, known as the Roti-beti relation, can also trigger border security issues, as incidents like the 2015 protest in Birgunj demonstrate (The Kathmandu Post, November 2, 2015). Nepal's open borders facilitate various transnational criminal activities, including drug trafficking, human trafficking, and the smuggling of illegal products (Acharya, 2022). The lack of stringent border control measures and the presence of unofficial crossing points make it easier for criminal groups to engage in these illicit activities (Acharya, 2017).

Additionally, due to Nepal's open borders with India, there is a substantial amount of cross-border movement involving both legal and illegal travel, creating difficulties for managing and controlling immigration of undocumented migrants (Bhargava & Kumar, 2016). Unrestricted border crossings put a strain on available resources and raise security issues (Bhargava & Kumar, 2016). The border regions of Nepal are home to various ethnic and cultural groups, adding complexity to border security efforts. The efficiency of border control measures can be impacted by political and ethnic tensions in these areas, requiring a nuanced approach to address security challenges (Bhargava & Kumar, 2016). Nepal's border security agencies struggle with limited resources, hindering their ability to maintain efficient border management. Challenges such as inadequate personnel, training, and modern technology make it difficult for the authorities to monitor operations, perform thorough border surveillance, and effectively address security risks (Pant, 2019).

### **Internal Migration Trends in Nepal**

Internal migration trends in Nepal, particularly from the highlands and countryside to the Terai and cities, have significant implications for population distribution and national security. The movement of people from rural to urban areas is driven by various factors, including the desire for better economic prospects, improved infrastructure, and access to services (Cleweet, 2015). This internal migration trend is reshaping the demographic landscape, with cities experiencing rapid expansion while rural areas face population decrease, creating challenges for resource allocation and service provision (Bilsborrow, 2013).

The Nepal Migration Report 2020 highlights the increasing trend of internal migration, with young people between the ages of 15 and 29 constituting the majority of migrants, seeking employment opportunities and education in urban centers (IOM, 2020). Economic factors, such as wage disparities, employment opportunities, and changes in the agriculture industry, play a central role in influencing internal migration in Nepal (Kandel & Massey, 2002). As the population gravitates towards urban areas, pressure mounts on urban infrastructure and public services, leading to heightened demands for housing, healthcare, and education facilities. Social networks and familial ties also influence migration patterns, with people settling in places where they have relatives or connections, establishing social support systems that can aid their integration into urban communities (Kandel & Massey, 2002). However, this phenomenon can also create challenges in terms of urban planning and service provision, as urban areas must accommodate the influx of migrants and address the needs of both long-term residents and newcomers.

The asymmetric lifestyle between the Terai and highland regions is a fundamental factor leading to migration from the highlands to the Terai region (Kandel & Massey, 2002). Economic disparities between the regions and the availability of employment opportunities in the Terai region act as pull factors for migration. However, this migration pattern also poses challenges for the equitable development of both regions and may exacerbate existing economic disparities. Understanding these internal migration trends is critical for formulating effective border security policies and strategies. As population distribution shifts, border regions may face demographic changes that impact resources, services, and security (Bilsborrow, 2013). Moreover, internal migration patterns can influence vulnerabilities and security concerns related to border regions. For instance, increased migration to urban centers may strain available resources, leading to heightened demand for cross-border trade and potential illicit activities (Cleweet, 2015).

In light of these challenges, a critical analysis of internal migration trends and their impact on border security is essential for safeguarding national interests and ensuring the effective management of Nepal's borders. Policymakers must address the socio-economic factors driving migration, promote balanced regional development, and establish comprehensive border control measures that account for changing population dynamics (Gurung & Khanal, 2021). By proactively addressing the implications of internal migration on border security, Nepal can enhance its capacity to manage cross-border movements, mitigate security risks, and foster sustainable development across the country.

**Table 1**

*Population of Nepal According to Geographical Regions in Different Years*

Census Year	Mountain	Hill	Terai
1991	1,443,130	8,419,889	8,628,078
2001	1,687,859	10,251,111	11,938,970

2011	1,781,792	11,394,007	13,318,705
2021	1,772,948	11,757,624	15,634,006

*Note.* CBS (2021).

The data provided in the table above represents the population distribution in different regions of Nepal over four census years: 1991, 2001, 2011, and 2021. Notably, the population in all three regions- the Mountain, Hill, and Terai- has consistently increased during this period. The Terai region consistently exhibits the highest population count, indicating a greater rate of urbanization and migration towards the plains. This aligns with internal migration trends where people from the highlands and hills migrate to urban areas in the Terai for better economic prospects and access to services. The changing population distribution has implications for resource allocation, infrastructure development, and urban planning, and it also impacts border security governance, as regions experiencing rapid population growth may face increased pressure on border management and security measures.

The research investigates the root causes of population change, and its impact on border security and also figures out the concerned authorities responsible for mitigating the risks created by frequently decreasing populations around the border connected to China (Bhotekoshi rural municipality and Jugal rural municipality of Sindhupalchowk District of Nepal). Likewise, this research also tends to investigate the root causes, its impact on border security governance and responsible authority to mitigate the security risks created by the rapidly growing demography of Rajdevi Municipality and Gaur Municipality of Rautahat, the Nepalgunj Sub-Metropolitan City of Banke and Bhajani Municipality and Dhangadhi Sub-Metropolitan City of Kailali District of Nepal around the border linked with India. The following table represents the changing demographic trends of above mentioned local levels through the time span of latest two decades.

**Table 2**

*Change in Population of Different Local Levels in 2011 and 2021*

S.No.	District	Local Levels	Population in 2011	Population in 2021	% Change (per year)	Border Linked with
1	Sindhupalchowk	Bhotekoshi Rural Municipality	16631	14318	-1.44 %	China
		Jugal Rural Municipality	19231	18303	-0.47 %	
2	Rautahat	Rajdevi Municipality	30569	35658	1.48 %	India
		Gaur Municipality	34937	39846	1.26 %	
3	Banke	Nepalgunj Sub-Metropolitan City	138951	164444	1.62 %	India
4	Kailali	Bhajani Municipality	51845	53494	0.30%	India
		Dhangadhi Municipality	147741	198792	2.85%	

*Note.* CBS (2021).

## **Research Methodology**

This research adopts a mixed-method design, combining both qualitative and quantitative data sources to comprehensively analyze the threat perceptions of locally elected representatives on border security issues arising from changing demography in Nepal. The study focuses on local-level areas in Nepal with significantly decreasing and increasing demographic trends, particularly those connected to neighboring countries China and India.

The research aims to explore how locally elected representatives perceive border security challenges related to changing demographics. While several studies have looked at the connection between demographics and border security, no research has been done in Nepal specifically focusing on the perceptions of local-level elected representatives on this matter. As these officials are directly involved in addressing border governance, management, demographic changes, and urbanization in border areas, analyzing their perceptions is crucial for understanding these complex issues. The research focuses solely on the perception analysis of elected representatives of local-level government to ensure precision in the analysis. The selected local levels for analysis are Bhotekoshi Rural Municipality and Jugal Rural Municipality of Sindhupalchowk District, which connect to China and has frequently decreasing demography trend, and Rajdevi Municipality and Gaur Municipality of Rautahat, Nepalgunj Sub-Metropolitan City of Banke, and Bhajani Municipality and Dhangadhi Sub-Metropolitan City of Kailali District, which connect to India which has the frequently increasing demography trend. The primary data sources for this research are local-level government representatives, including Mayor, Deputy Mayor, Chairperson of Rural Municipality, Vice Chairperson of Rural Municipality, and Ward Chairpersons. Data is collected through interviews using a structured questionnaire specifically designed to understand the respondents' perceptions on the causes and impacts of demographic change on border security, as well as the identified security threats. The selected areas for analysis are strategically chosen based on their specific demographic trends and proximity to neighboring countries.

The analysis of data involves two main approaches. Firstly, the qualitative data from interviews is analyzed thematically to identify the key causes, impacts, and security threats related to demographic change as perceived by the elected representatives. Secondly, quantitative data, such as population trends in the selected areas, is analyzed to measure the shifts in population demographics. A comparison is made between the latest two censuses of Nepal to understand the changes in population dynamics. The research's scope is limited to selected areas of Nepal, and the findings may not be fully generalizable to other regions of the country. Additionally, the research relies on the accuracy and honesty of the respondents in providing their perceptions and may be subject to potential biases. The study excludes perception analysis from security forces or other concerned agencies, which might have provided additional perspectives on the subject.

## Findings

The research is grounded in theoretical frameworks that include Demographic Transition Theory, Security Studies, Border Governance, and Perception Theory. These theoretical foundations allow for a comprehensive examination of the complex relationship between demographic changes and border security governance in Nepal. The research delves into the demographic dynamics of Nepal, including population growth, internal migration, and cross-border movements, and their profound implications for border security. The Demographic Transition Theory helps in understanding the patterns of population change over time, while Security Studies and Border Governance provide insights into how these demographic shifts impact border security challenges, such as human trafficking, smuggling, and transnational crimes. Moreover, Perception Theory forms a critical component, enabling the analysis of the perceptions of locally elected representatives regarding the causes, impacts, and security threats associated with demographic change.

Perception analysis assumes paramount importance as it offers valuable insights into how key stakeholders, particularly locally elected representatives, interpret and comprehend demographic changes and their effects on border security. By uncovering these perceptions, the research can identify priority areas, potential gaps in understanding, and specific threats that resonate at the local governance level. The significance of interviews with elected representatives lies in their ability to provide firsthand perspectives on border security issues, especially at the local level where these challenges directly impact communities. Engaging in interviews offers a personalized approach, enabling researchers to capture nuanced insights, comprehend the local context, and understand the complexities of managing border security amidst demographic changes.

Out of forty-one key informant interviewees, five were the Mayors of respective municipalities and two were the Chairpersons of rural municipalities. Also, one deputy mayor and two vice chairpersons of respective local governments were interviewed. Thirty-one ward chairpersons were taken into account to collect primary data regarding the topic.

**Table 3**

### *Causes of Demographic Change*

Causes		Extremely influenced	Highly influenced	Moderately influenced	Less influenced	Very less influenced	Total
Shifts from Agricultural Sector	Frequency	9	14	7	11	0	41
	Percent	21.95	34.15	17.07	26.83	0.00	100.00
Opportunities for Employment	Frequency	33	7	1	0	0	41
	Percent	80.50	17.10	2.40	0.00	0.00	100.00
Growth of Income	Frequency	1	14	18	8	0	41
	Percent	2.40	34.10	43.90	19.50	0.00	100.00

Threat of Conflict	Frequency	11	3	9	16	2	41
	Percent	26.80	7.30	22.00	39.00	4.90	100.00
Social Conflict	Frequency	0	0	8	33	0	41
	Percent	0.00	0.00	19.50	80.50	0.00	100.00
Child Education	Frequency	30	9	0	2	0	41
	Percent	73.20	22.00	0.00	4.90	0.00	100.00
Search for a Better Life	Frequency	35	6	0	0	0	41
	Percent	85.40	14.60	0.00	0.00	0.00	100.00
Attraction of Opportunities	Frequency	21	3	5	12	0	41
	Percent	51.20	7.30	12.20	29.30	0.00	100.00
Others	Frequency	18	8	8	7	0	41
	Percent	43.90	19.50	19.50	17.10	0.00	100.00

*Note.* Interview taken from local level respondents (2023).

Analyzing the above table, no. 3, it is observed that the perception of the majority of interviewees regarding the cause of demographic change lies successively in the search for a better life (85.40%), opportunities for employment (80.50%), and education of children (73.20%). Other causes include the attraction of opportunity and the shift from the agricultural sector. While the less influencing factors of demographic change as per the majority of key informants are social conflict and the threat of other conflicts.

Many of the informants from frequently decreasing demographic regions- Bhotekoshi Rural Municipality and Jugal Rural Municipality of Sindhupalchowk district argued that the earthquake of 2015 resulted in massive destruction of geological places that led to the unsuitability of the places for living thus, forcing people to shift towards geographically safer zones. Informants of the same location perceived that people with fiscal purposes migrated to other places from there after the Tatopani and Kodari border got locked down by the government of China. Having less chance of being employed, the ones who has to earn money for their family went abroad for foreign employment while the dependent members of the same family shifted towards town and city areas for better education of their children.

Informants from frequently increasing demographic regions that are Rajdevi Municipality and Gaur Municipality of Rautahat, Nepalgunj Sub-Metropolitan City of Banke and Dhangadhi Sub-Metropolitan City and Bhajani Municipality of Kailali- perceived cause of changing demography to be ritual and religious beliefs of people in the Muslim community where the use of contraceptives is prohibited and the myth of giving birth to more number of babies believing children as god's gift is prevalent in Islam religion.

**Table 4***Impacts of Changing Demography in Border Security*

Factors		Extremely influencing	Highly influenced	Moderately influencing	Less influenced	Very less influenced	Total
Economic Instability	Frequency	18	11	8	4	0	41
	Percent	43.90	26.80	19.50	9.80	0.00	100.00
Illegal Residence	Frequency	5	15	7	12	2	41
	Percent	12.20	36.60	17.10	29.30	4.90	100.00
Social and Cultural Conflict	Frequency	5	7	12	14	3	41
	Percent	12.20	17.10	29.30	34.10	7.30	100.00
Ethnic and Regional Conflict	Frequency	1.0	3.0	14.0	14.0	9.0	41.0
	Percent	2.40	7.30	34.10	34.10	22.00	100.00
Organized Crime	Frequency	1	8	9	18	5	41
	Percent	2.40	19.50	22.00	43.90	12.20	100.00
Threat of Terrorism	Frequency	0	3	9	18	11	41
	Percent	0.00	7.30	22.00	43.90	26.80	100.00
Energy Crisis	Frequency	0	2	14	23	2	41
	Percent	0.00	4.90	34.10	56.10	4.90	100.00
Conflict in border resident	Frequency	1	9	8	21	2	41
	Percent	2.40	22.00	19.50	51.20	4.90	100.00
Economic Inequality	Frequency	13	13	10	5	0	41
	Percent	31.70	31.70	24.40	12.20	0.00	100.00
Incidence of violation of law	Frequency	16	5	13	4	3	41
	Percent	39.02	12.20	31.70	9.75	7.30	100.00
Inequality in Development	Frequency	10	13	9	9	0	41
	Percent	24.40	31.70	22.00	22.00	0.00	100.00
Religious Conflict	Frequency	1	4	9	17	10	41
	Percent	2.40	9.80	22.00	41.50	24.40	100.00
Food Crisis	Frequency	3	13	10	6	9	41
	Percent	7.30	31.70	24.40	14.60	22.00	100.00
Informal Trade(Chori/ Paithari) in Border	Frequency	25	3	2	9	2	41
	Percent	60.97	7.30	4.90	21.95	4.90	100.00

*Note.* Interview taken from local level respondents (2023).

Interpreting the above table no.4, it is found through the perception analysis of the interviewed representatives that informal trade (Chori/ Paithari) in border areas is observed as a major impact of changing demography (60.97%), followed by economic instability (43.90%), incidence of violation of laws (39.02%) and economic inequality (31.70%). Whereas, the threat of terrorism (26.80%), ethnic and regional conflict (22.00%), religious conflict (24.40%), and food crisis (22.00%) are observed to be relatively less influenced by changing demography. The investigation shows that changing democracy has a significant impact on border security. Representatives of



local government have the perception that threat on the border side is increasing along with increasing population due to their geography linked with neighboring countries on border areas. Representatives were found afraid of the threat of economic instability, informal trade, ethnic and cross-border conflict, unemployment, the incidence of violation of laws, and many more consequences raised by changing demography in border areas. Additionally, the study shows that border security threat is highly influenced by the open border of Nepal and India more than that of China.

**Table 5**

*Perception of Representatives on Role of Authorities to Mitigate the Risks Generated by Demographic Change*

Various Authorities		Extremely Effective	Very Effective	Moderately Effective	Less Effective	Very less Effective	Total no. of respondents
Federal Government	Frequency	32	4	5	0	0	41
	Percent	78.00	9.80	12.20	0.00	0.00	100.00
Federal Member of Parliament	Frequency	2	17	22	0	0	41
	Percent	4.90	41.50	53.70	0.00	0.00	100.00
State Government	Frequency	20	15	6	0	0	41
	Percent	48.80	36.60	14.60	0.00	0.00	100.00
State Assembly	Frequency	2	21	18	0	0	41
	Percent	4.90	51.20	43.90	0.00	0.00	100.00
Local Government	Frequency	24	9	7	1	0	41
	Percent	58.50	22.00	17.10	2.40	0.00	100.00
Nepal Police	Frequency	5	6	10	18	2	41
	Percent	12.20	14.60	24.40	43.90	4.90	100.00
Armed Police	Frequency	9	2	10	18	2	41
	Percent	22.00	4.90	24.40	43.90	4.90	100.00
Nepal Army	Frequency	4	5	11	19	2	41
	Percent	9.80	12.20	26.80	46.30	4.90	100.00
Non-governmental Organization	Frequency	0	0	9	29	3	41
	Percent	0.00	0.00	22.00	70.70	7.30	100.00
Court	Frequency	0	0	7	30	4	41
	Percent	0.00	0.00	17.10	73.20	9.80	100.00
District Administrative Office	Frequency	9	3	10	17	2	41
	Percent	22.00	7.30	24.40	41.50	4.90	100.00
Media	Frequency	17	11	9	4	0	41
	Percent	41.50	26.80	22.00	9.80	0.00	100.00

*Note.* Interview taken from Respondents, (2023)

Through the investigation and analysis of the table no 5, it is found that the perception of the majority of interviewed representatives is based on the view that the federal government is primarily responsible for risk mitigation caused by changing population dynamics which has been resolving the risks in extremely effective ways (78%), with

similar efficacy followed by local government (58.50%), state government (48.80%) and Media too (41.50%). Also, the perception analysis states court roles to be effective in the lowest manner (73.20%) followed by the minimalistic role of non-governmental organizations (70.70%) including the sparse role of Nepal Police, Armed Police Force (43.90%), and others.

As provided by Schedule 5 [Related to Article 57 (1 and 109)] of the Constitution of Nepal, 2015, regarding the protection of national unity and territorial integrity, as well as rights and responsibilities regarding national security, the central government has power and jurisdictions to maintain them all and manage the security that includes border and such securities as well. This investigation has found the perceptions of local-level officials that changing demography have a significant impact on the border and several security prospects and the central government has the primary role to mitigate such security threats. So, the central government should enhance the investment to build the infrastructures and further investment ought to be done to maintain and manage the border security and should mobilize the national resources to control cross-border crimes and informal trade in the border.

### **Conclusion and Recommendations**

This is not typically deductive research, where variables are derived from theory testing. In a large sense, this is an inductive search. When it tries to generate ideas about how the threat has been perceived by the local government members, there is a huge demography change, and it tries to connect these ideas with the theory and discussion of the security study, border study, and international relations. In that sense, this is generally hypothesis-generating research. Changing demography has major two dimensions: one is increasing demography while another is decreasing. The causes of changing demography vary according to geographical regions and the socio-economic and cultural background of society and the people over there. Demography rapidly decreasing or increasing has different consequences regarding various issues on border security as the perception expressed by the local level government. The perceptions argued by the representative of local level governments are similar to each other that is expressed as,

- a. Changing demography has the cause,
- b. Major drivers of changing demography are the accessibility to health, education, employment, and better life prospect for the people,
- c. Changing demography has its security implications including the threat to border security such as economic instability, illegal residence, social and cultural conflict, ethnical and regional conflict, organized crime, threat of terrorism and others,
- d. Security threats can be mitigated,
- e. The role to mitigate security threats is the obligation of the federal government,
- f. The threat perceptions of the local level governments of frequently increasing demography and frequently decreasing demography vary accordingly, such as,

increasing demography is perceived to cause social conflict resulting in border threat meanwhile decreasing demography is perceived to cause a lack of unified people to secure the border

It is recommended that the federal government should tie up with local-level governments to mitigate the causes and consequences of demographic change that impact border security and result in cross-border security issues. Related Schedules and Provisions of the Constitution of Nepal and respective laws regarding national security should also be amended to delegate the power and jurisdiction to the local level government for border security.

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## Important Factors Applicable in Bilateral Relationships and Conflict Resolution

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### **Abstract**

*Important factors applicable in bilateral relationships and conflict resolution are strategies, models, theories, and policies. In simple term, strategy is a long-term plan intended to achieve. An example to follow or imitate is a model. An idea to justify a course of action is a theory whereas law, regulation, and procedure used is a policy. Strategy embodies interest based priorities, which has short, medium, and long-term implications for a country. Model gives template that guides in constructing a system. Theory is essential tool for state craft. Guidance, constancy, accountability, efficiency, and clarity on how an organization operates are provided by policies. The objective of the paper is to examine important factors applicable in bilateral relationships and conflict resolution and highlight important relevant factors. To prepare the paper, qualitative methodology, explanatory research design, descriptive and analytical study design, and secondary sources of related textual and virtual documents are used. After discussion, relevant strategies of 'progressive nationalism, frequent dialogues and visits at high level, border diplomacy, pushing into regular constructive dialogues, playing diplomatic roles by a third country, and using International Boundary Research Unit (IBRU);' models of 'geo-economic and territorial project model of cross-border integration, bilateral trade flows, and partial settlement in resolving disputes;' theories of 'FDI inflow and bilateral political relationships, problem workshops, creation of international regime, and international organizations*

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*(IOs) brokered bargaining;’ and policies of ‘bilateral relationships, defense diplomacy, bilateral economic relations, bilateral diplomacy, nonalignment with equal friendships for all and diversification, an equal and respectful but not reciprocal relationships, leaders’ visits and diplomatic conflicts, third party intermediaries, enduring rivalries, pursuit of legal settlement, compromise or escalation or maintenance of status quo or swapping of territory, and uti possidentis or ground realities are highlighted to be adopted by the governments.*

## **Introduction**

Important factors applicable in bilateral relationships and conflict resolution are strategies, models, theories and policies. Today, countries in the world adopt most of these factors to strengthen and harmonize their bilateral relationships and resolve their conflicts which may be border or territorial disputes as well as political, economic, cultural or any other bilateral disputed subjects.

Strategy is a general long-term plan intended to achieve. “Strategy is a unified, comprehensive, and integrated plan designed to assure that the basic objectives of the enterprise are achieved” (Glueck). Having a clear and focused strategy is critically important to the success of any business. An example to follow or imitate is a model. “Model is a simplified representation of a system at same particular point in time or space intended to promote understanding of the real system” (Bellinger, 2004). Models can help to visualize or picture in mind something that is difficult to see or understand. Through the model, we can get an overview of the whole system and it is a standard that is to be followed for goal achievement. An idea to justify a course of action is a theory. “Theory is a set of interrelated constructs, definitions, and propositions that present a systematic view of phenomena by specifying relations among variables, with the purpose of explaining or predicting phenomena” (Kerlinger & Lee, n. d.). It is also said theory to be an orderly and integrated set of statements that describes and predicts behavior. Theories are vital and they guide and give meaning to what we see and a tool that enables to identify problems and plan a means for altering the situation. Law, regulation and procedure used is a policy. “Policies are general statements or understandings which guide managers’ thinking in decision making. They ensure that decisions fall within boundaries” (Koontz & O’Donnel). A policy is also a predetermined course of action, establishing the guidelines towards business strategies and objectives. It is the link between an organization’s vision, values and day to day operations. “Public policy is an action which employs governmental authority to commit resources in support of a preferred value” (Considine, 1994).

Strategy is a long-term plan that allocates how an institution plans to use its resources to support its activities. Conflict resolution strategy is as a panacea for promoting organizational unity. To keep disagreements from escalating while continuing to discuss each point of view and eventually reach a collaborative conclusion are the design of conflict resolution.

Model helps us to visualize a system as it is or as we want to be and permits us to specify the structure or behavior of a system. Model gives template that guides in constructing

a system. The model of conflict resolution is not to decide which is right or wrong. Its goal is to reach a solution that conflicting parties can live with. The patterns of how conflicting parties tend to feel, think, and act in the context of conflict and danger is described by the conflict model of Thomas-Kilmann which explains five styles of conflict management: avoiding, accommodating, compromising, collaborating, and competing (Thomas, 2008).

Theory is a tool that enables to identify a problem and to plan a means for altering the situation. One of the first functions that theory performs is to define the terms and concepts used to describe, explain, or predict in the study of international relations (IR). “Theory remains essential for diagnosing events, explaining their causes, prescribing responses, and evaluating the impact of different policies. Theory is an essential tool for statecraft” (Stephen, 2005). The informal and formal process that two or more parties use to find a peaceful solution to their conflicts is guided by the conflict resolution theory. Karl Marx in 19th century introduced ‘conflict theory’. “Conflict theory is the idea that all of societies are in constant conflict because of a lack of resources” (Rossel & Manza, 2013). Competition among groups within a society or group of countries over limited resources is focused by the conflict theory.

Guidance, consistency, accountability, efficiency, and clarity on how an organization operates are provided by policies. Desired outcome that policy-makers wish to achieve is the objective of policy. The main idea of creating policy is to improve life for members of the public. Officials design policies that move the public closer to a desired state or public goal. To achieve timely, equitable, and satisfactory resolution at the lowest possible level, in a cost effective manner and with intention to deduce conflict recurrence is the goal of the conflict resolution policy.

Today’s diplomatic practices are a consequence of the revolution of information and communication technology (ICT) and the globalization of diplomacy. Each country should be careful to adopt relevant important factors while conducting bilateral diplomacy and resolving conflicts.

Lack of selection of important relevant factors to adopt has created problems to strengthen and harmonize bilateral relationships between friendly countries as well as resolution of conflicts.

The objectives of the paper are to examine the applicable important factors and highlight the relevant important factors to be adopted by the governments to strengthen and harmonize bilateral relationships and conflict resolution. This paper seeks the answers of the following questions.

- a. What are the important factors applicable in bilateral relationships and conflict resolution?
- b. Which important factors; strategies, models, theories, and policies; are relevant to adopt by the governments to strengthen and harmonize bilateral relationships and resolve the conflicts that have occurred mainly from border and territorial disputes and economic relations ?

The scope and significance of the study is to examine important factors; strategies, models, theories and policies; applicable in bilateral relationships and conflict resolution and highlight some of the relevant factors to be adopted by the governments.

### **Review of the Literature**

Literature on important factors; strategies, models, theories and policies applicable in bilateral relationships and conflict resolution; are reviewed here thematically in sequence-wise order.

Subedi and Timilsina (2020) have mentioned that border issues were neither strategic nor truly nationalistic in Nepal political circle. They seem mostly opportunistic using anti-Indian sentiments to expand their voter base. Mostly, Nepal seems reactive rather than proactive in response to border disputes. Nepal needs to adopt 'proactive response' strategy in this matter.

Bercovitch and Jackson (2001) have mentioned that the strategy of 'negotiation or mediation' is likely to take place in the following contextual conditions. Negotiation is used when conflicts are relatively simple, low intensity, and conflicting parties are relatively equal in power. On the other hand, mediation is used in disputes of high complexity, high intensity, long duration, conflicting parties are unequal in power, and their willingness to settle disputes peacefully is in doubt.

Oliver (2001) has mentioned that scholars and practitioners have come to recognize the strategic role of 'public relations' as a matured discipline. Public relation has not only its strategic value and the management of relationships between an organization and all its stakeholders but also has a key communication role within other management operations.

The authors above have highlighted the strategies of 'proactive response, negotiation and mediation, and public relations.' These strategies are pertinent and contemporary in bilateral relationships and conflict resolution.

Rodriguez and Wilson (2002) have mentioned a model of 'relationship bonding on trust and commitment' between partners in international alliances. In the context of US-Mexican strategic alliances, this model was tested. Trust and commitment assisted in building interdependency between both partners was the result of the test. Commitment to the relationship as supported on high level of trust was perceived by both US and Mexican managers.

Erez and Gati (2004) have described the 'multilevel model' of bilateral cultural relationship and stated that a multilevel model of culture consisting of structural and dynamic characteristics explain the interplay between various levels of culture. Globalization as the macro level of culture affects through top-down processes and behavioral changes of the members in various culture.

Makinley and Little (1977) have explained the 'analytical foreign policy' model of US bilateral aid allocation citing the two views. The allocation of aid in terms of humanitarian needs of the recipients is one view and the other view is in terms of foreign policy

interests of the donor. Although, the foreign policy view seen now clearly dominant.

The authors have described above the models of 'relationship bonding on trust and commitment, multilevel model, and analytical foreign policy' applicable in bilateral relationships and conflict resolution..

Yang (2021) has explained the theory of 'balance of relationship' citing that balance of relationship (BoR) theory universally applies in bilateral relationships and compliments the existing balance of power theory. Actors with different identities and interests strive for long-term stability by practicing self-restraint and improvising in order to relate a resemblance or shared identity in bilateral relationships.

Pouryousefi and Frooman (2017) have explained the 'agency theory' of bilateral economic relationship mentioning that agency theory as a cautionary tale is viewed by some business ethicists. It is impossible to carry out successful economic interactions in the absence of ethical behavior. A nuanced normative characterization of agency is presented by the cautionary tale view.

Yoon, et al., (2021) have described the 'internalization theory' mentioning that weak economic, political, and military relationships between acquiring and target countries induce emerging market firms (EMFs) to opt for full acquisition. The view of the internalization theory that highlights the EMFs preference of full ownership over partial ownership by coping with the political risks derived from weak bilateral relationships is supported here.

The authors above have mentioned the theories of 'balance of relationship, agency theory, and internalization theory' that are relevant in the context of bilateral relationships and conflict resolution.

Gardner (1999) has highlighted the policy of 'reconciliation' in bilateral political and military relationships citing that as an ideal in foreign policy, Germany has sought reconciliation since 1949. In four bilateral cases of reconciliation in Germany foreign policy, the mix of pragmatism and morality differs with Israel, France, Poland, and Czech Republic depending on history, institutions, leadership, and international context.

Geottich (2019) has described the policy of 'linearization of borders. To indicate vaguely an area or a frontier zone of a certain width or of certain places or jurisdiction in establishing control over territory is not considered enough regardless of place or context. Territories must have linear borders ideally consisting of precise one-dimensional points on earth's surface connected by straight lines that has been assumed since the late 19th century.

Paudyal (2013) has described the policy of 'dialogue and discussion' to resolve border disputes citing that millions of Nepali will become foreigners and our country's existence may end in near future if we watch silently and encroachment continues at the current rate. To solve border encroachment by mutual understanding, Nepal and India need dialogue and discussion.

The authors have explained above the policies of 'reconciliation, ideal of linearization

of borders, and dialogue and discussion.’ These policies seem quite pertinent and contemporary in present context to maintain bilateral relationships and conflict resolution.

All the reviewed literature above on important factors; strategies, models, theories, and policies applicable in bilateral relationships and dispute resolution; seem pertinent and contemporary in the present context. After reviewing literature, it is clear that further study on subject matter is needed.

### **Methodology**

Qualitative methodology, explanatory research design, and descriptive and analytical study design are used to prepare the paper. Data collection is based on secondary sources of related textual and virtual documents analyzed inductively using three ‘Is’: insight, intuition, and impression/experiences.

### **Applicable Important Factors**

#### **Strategies**

Dev (2016) has suggested adopting the strategy of ‘progressive nationalism’ in order to strengthen and harmonize bilateral relationships citing that unproductive, irrelevant, outdated, prejudiced, and suicidal views must be given up by the political parties. No compromise or surrender to the sovereignty and territorial integrity but establishing a trustworthy dependable, and mutually beneficial productive friendly relations for peace, stability, sustainable economic development, prosperity of the country, and the people is the strategy of ‘progressive nationalism.’

Shakya (2016) has pointed out that to strengthen and harmonize bilateral relationships, the strategies of ‘frequent dialogues and visits at high levels’ are needed. The misunderstandings on even serious anomalies which were not identified earlier also are eliminated by the dialogues. Close understanding will be deepened by the frequent visits. Frequent visits also bring trust, confidence, and cement the exemplary relationships further.

Shrestha (2021) has mentioned that diplomacy is an instrument for negotiation of a common challenge to find mutually acceptable solution in a non-confrontational and polite manner. Diplomatic approaches to demarcate, manage, and resolve the border and territorial disputes is the strategy of ‘border diplomacy.’

Subedi and Timilsina (2020) have indicated that keeping in view of the Modi’s ‘neighborhood first’ policy, Nepal needs to be resilient and adopt the strategy of ‘pushing India into regular constructive dialogues’ to resolve border and territorial disputes.

Shrestha (2022) has touched upon the strategy of ‘playing diplomatic roles by a third country’ and suggested to play a diplomatic role by the President Xi Jinping of China forwarding ‘Lipulekh Diplomacy’ and Limpiadhura, Lipulekh, and Kalapani may be regarded as ‘special economic zone.’

Shrestha (2022) has specified the strategy of using ‘international boundary research unit

(IBRU) which may appear to play a role of an impartial and competent arbitrator to resolve border and territorial disputes, if it is requested by the both parties. IBRU has been the world's leading centre on international boundary making and dispute resolution since its founding in 1989.

### **Models**

Tagiew and Kovalchuk (2009) have explained 'nonmonetary bilateral cooperation' model of bilateral social relationship citing the example of social cooperation such as allocation of high level jobs or finding suitable partner to marry such nonmonetary cases.

Oh and Labinca (2006) have explained 'multilevel and multidimensional model of group social capital' in bilateral social relationship citing that greater group social capital resources lead to greater group effectiveness.

Yang, et al., (2022) have illustrated 'moderating effects of distance measures' model in bilateral cultural relationship citing that geography, culture, economy, and social and political distances are included in 'moderating distances measures.'

Li and Vashchilko (2009) have explained the model of 'dyadic military conflict, security alliances, and bilateral FDI flows' in bilateral military and economic relationships citing that from the perspectives of both state and investor, interstate military conflicts reduce bilateral investment and security alliances, particularly defense pact increases it.

Roy has explained the 'gravity model' of bilateral economic relationship illustrating that for analyzing the determinants of bilateral trade flow, 'gravity model' has long been a work house. The 'gravity model' in its most intuitive version, postulate that bilateral trade depends on the economic size of the trading partners which reflect market size, purchasing power, and a measure of economic distance between countries to reflect trade cost.

Pollins (1989) has pointed out the 'bilateral trade flows' model of political economy citing that to gain insight into the connection between the international politics and trade flows, the public choice approach to political economy is employed. Nations adjust trade ties to satisfy security as well as economic welfare goals.

McKinley and Little (1979) have illustrated the 'recipient need and donor interest' model of bilateral economic relationship citing that it has been an institutionalized diminution of transforming bilateral aid between high and low-income countries, 'donor interest' model plays a vital role.

Sohn (2014) has described the 'geo-economic and territorial project model of cross-border integration' in bilateral border relationship. Mobilization of the border as a differential benefits and generate value out of asymmetric cross-border interaction is the model called 'geo-economic' and the border resources involving convergence of both sides either through process of hybridization/innovation or territorial and symbolic recognition that borders entail is 'territorial project.'

Matters (2018) has pointed out the model of ‘partial settlement in resolving disputes’ which signal the desire to resolve disagreements and can lay the foundation for additional cooperation by binding trust and/or demonstrating the benefits of dispute resolution. Partial settlement should be associated with the resolution of remaining disagreements.

Powell and Wiegand (2014) have explained ‘regime type/rule of law’ model to resolve territorial disputes illustrating that high rule of law states are more likely to return to the international binding venues only if they have a positive experience with arbitration and adjudication. On the other hand, low rule of law states are not concerned with their record of successes/failures when resorting to international binding venues.

### Theories

Arentze and Timmermans (2008) have described the theory of ‘social network’ in bilateral social relationship illustrating that ‘social networks’ are not static and at the same time new social links emerge and existing social links may dissolve. ‘Social network’ theory is that the utility that a person derives from social interaction is a function of dynamic social and informational needs. It is of similarity between the relevant characteristics of a person involved.

Mcclintock et al., (1984) have explained the theory of ‘equity and social exchange’ in bilateral social relationship. Human frequently consider fairness in their calculation of costs and benefits in their encounters with others is maintained by this theory

Milissen (2005) has highlighted the theory of ‘public diplomacy’ in bilateral cultural relationship illustrating that image cultivation, propaganda, and activities are nearly as old as diplomacy itself which is labeled new as ‘public diplomacy.’ ‘Public diplomacy’ goes as far as the Bible and international relations (IR) in ancient Greece, Rome, and Byzantium and the Italian Renaissance.

Sagan (1994) has explained the ‘organization theory’ and ‘deterrence theory’ in bilateral military relationship illustrating ‘nuclear weapons and deterrence.’ It is widely believed that nuclear weapons were an important factor in maintaining the ‘long peace’ between the USA and the Soviet Union during the ‘cold war.’ ‘Spreading nuclear weapons into areas where non-nuclear states face nuclear armed adversaries, since the chance of bilateral conflict becoming nuclear decreases to zero when all nations are nuclear armed (Mesquita & Riker, n. d.).’

Huang et al., (2019) have described the theories of ‘FDI inflow’ and ‘bilateral political relationship’ illustrating that there would be more FDI inflows into the country due to a decline in the level of economic and political uncertainties. However, FDI inflow will tend to deteriorate when the level of bilateral political relationship exceeds a certain threshold. An excessive level of political relation rules out the earning opportunities due to the decrease and removal of the preferential policy on supporting business in the over-maturation of the host country.

Polachek (1997) has explained ‘democratic peace theory’ in bilateral political relationship illustrating that democracies rarely fight each other. The fundamental factor



causing bilateral cooperation is trade. Countries seek to protect wealth-gain from international trade. Therefore, trading partners are less combative than non trading nations. Democratic dyads trade more than non democratic dyads and exhibit less conflict and more cooperation.

Beran (2005) has highlighted the ‘comprehensive normative theory of political borders’ in resolution of border disputes illustrating that this theory is formulated as a theory of moral right of political self-determination and secession and is consistent with democratic principles. This theory includes a theory of good borders and rightful borders, rightful unity of the state, and rightful secession.

Hill (1982) has indicated the ‘theory of problem workshops’ for conflict resolution illustrating that these workshops serve two functions: research of participant-observer variety which allows researchers to observe real world conflict behavior; and service, providing insight and training to the conflict participants regarding peaceful resolution of their conflict.

Weibull (2009) has described the theory of ‘creation of international regime’ for territorial dispute resolution citing the example of Peru and Ecuador. The conflict resolution process did not only focus in bringing peace by setting the border line but it also focused on the creation of an international regime to proportionate bi nation. The process also focused regional social and economic development, economic integration, and political cooperation.

Choi and Eun (2018) have explained two international relations (IR) theories ‘liberalism and constructivism’ for resolving territorial disputes. The complex and multifaceted nature of dispute over territory and their resolution calls for a synthetic interactive approach which to be based on a combination of the values of the two IR theories: liberalism and constructivism.

Shannon (2009) has highlighted the theory of ‘international organizations (IOs) brokered bargaining’ in territorial dispute resolution illustrating that organizations with intervenist capabilities encourage disputing members to attempt peaceful conflict resolution using territorial claim data.

Gensburge and Mc Adams (2003) have explained the ‘game theory’ and ‘expressive theory’ used by the international institutions for dispute resolution. ‘Game theory’ is to explain the power of international adjudication via set of ‘expressive theory’ which shows how law can be effective without sanction.

## **Policies**

Haim (2016) has mentioned the policy of ‘international political alliance’ in bilateral political relationship citing that how trade flow is affected by network of international political alliances. When states are in the same alliance community and have more shared alliances, higher level of trade result is found. Because, governments align trade policies with national security interests and alliances matter in predicting trade outcome.

Bonoma (1976) has explained the policies of ‘conflict, cooperation, and trust’ in bilateral

social relationship illustrating that conflict, cooperation, and trust have traditionally been employed in a context- irrelevant fashion as general theoretical explanations for many social phenomena at the level of organism or person, group, organizations, societies, and even supranational system. These are central variables of power.

Pannier (2020) has described the policy of 'bilateral relations' in bilateral cultural relationship illustrating that 'bilateral relations' are the founding element and the core of diplomatic work in international relations (IR). Since their emergence and formalization in Europe with modern states in the seventeenth century, bilateral relations are coming back to the fore front to overshadow multilateralism in the contemporary international system.

Stovey (2012) has explained the policy of 'defense diplomacy' in bilateral military relationship illustrating that China's defense diplomacy has broadened in the pursuit of new foreign policy and security goals in consonant with global trends. China has stepped up arms sale to the region, military exchanges and naval ship visits, initiated annual defense and security dialogues, and combined training and exercises.

Beebon (1997) has described the policy of 'bilateral economic relations' illustrating that despite the internalization of economic activity and naturally associated diminution of economic policy making autonomy, national policy settings continue to display a surprising degree of divergence and remain important determinants of economic outcome.

Rozental and Buenrostro (2013) have explained the policy of 'bilateral diplomacy' illustrating that to enhance relations among nations, diplomacy is based on crafting ways. When, where, and how a specific country to country relationships will become more relevant is determined by 'bilateral diplomacy.'

Rose (1971) has highlighted the King Mahendra's foreign policy of 'nonalignment with equal friendships for all' and 'diversification' to balance both the neighbors, India and China. The devised tactics to achieve these objectives was first a careful balancing relevant external forces in order to minimize their capacity to restrict Nepal's freedom of maneuver, maximize the benefit (e.g., foreign aid) derived there from and contribute to Nepal's security. The second was a cautious tacking back and forth between Nepal's two great neighbors as circumstances seemed to dictate.

Gautam (2016) has mentioned the policy of 'an equal and respectful but not reciprocal relationships' of the 'Gujral Doctrine' to strengthen and harmonize bilateral relationships. One country gives more what it has and receives more of what its neighbor can share. Absolute equality and reciprocity may be an ideal. These are neither practical nor essential for good neighborly relations.

Song et al., (2020) have highlighted the policy of 'leaders' visits and diplomatic conflicts' in bilateral political relationship citing that leaders' visits can significantly increase FDI inflows and out flows but diplomatic conflicts have less impact on FDI.

Raymond (1996) has outlined the policy of 'third party intermediaries' for conflict

resolution highlighting that democracies rarely fight one another. Shared norms fostered by a democratic political culture promote peaceful conflict resolution. Joint democratic dyads allegedly have a greater inclination than other types of dyads to entrust third party with judicial competency to settle their disputes.

Huth (1996) has described the policy of ‘enduring rivalries’ in territorial disputes illustrating the example of out of 129 territorial disputes in the international system from 1950-1990, only 36 territorial disputes developed into enduring rivalries during this period.

Allec and Huth (2006) have highlighted the policy of ‘pursuit of legal settlement’ for territorial disputes illustrating that a common source of armed conflict and war is yet territorial disputes. Governments have resolved dozens of territorial disputes through recourse to international arbitration or adjudication during the twentieth century.

Westcott (2017) has explained the policy of ‘compromise or escalation or maintenance of status quo or swapping of territory’ for territorial dispute resolution illustrating that when particularly major powers have border disputes, they find difficulties to resolve disputes by using the policy of ‘compromise’ or ‘escalation.’ Therefore, they fall back upon a policy of ‘status quo maintenance.’ Territorial swap can be one of the plausible solutions. If both the parties are democratic states, ‘democratic peace theory’ may work.

Kumar (2021) has suggested the policy of adopting the principle of ‘uti possidentis’ (as you possess, so shall you possess) or ‘ground realities’ for resolving border and territorial disputes illustrating that the colonizers had drawn borders without keeping in mind the sociopolitical realities. The idea of boundary can never be separated from culture, history, nature of political groupings of the people, and the territory occupied by them. So, to resolve border and territorial disputes, one option would be to follow the policy of adopting ‘Uti possidentis’ principle or redraw the borders based on ‘ground realities.’

## **Discussions**

Out of these ‘progressive nationalism, frequent dialogues and visits at high levels, border diplomacy, pushing into regular constructive dialogues, playing diplomatic roles by a third country, and using international boundary research unit (IBRU)’ strategies; the relevant strategies to strengthen and harmonize bilateral relationships and conflict resolution are: ‘progressive nationalism, frequent dialogues and visits at high levels, border diplomacy, pushing into regular constructive dialogues, playing diplomatic roles by a third country, and using international boundary research unit (IBRU).’

Out of these ‘nonmonetary bilateral cooperation, multilevel and multidimensional model of group social capital, moderating effects of distance measures, dyadic military conflict, security alliances, and bilateral FDI flow, gravity model, bilateral trade flows, recipient need and donor interest, geo-economic and territorial project model of cross-border integration, partial settlement in resolving disputes, and regime type/rule of law models;’ the relevant models to strengthen and harmonize bilateral relationships and conflict resolution are: ‘geo-economic and territorial project model of cross-border integration, bilateral trade flows, and partial settlement in resolving disputes.’

‘Social network, equity and social exchange, public diplomacy, organization and deterrence, FDI inflow and bilateral political relationship, democratic peace theory, comprehensive normative theory of political borders, problem workshops, creation of international regime, liberalism and constructivism, international organizations (IOs) brokered bargaining, and game theory and expressive theory are applicable theories in bilateral relationships and conflict resolution .Out of these theories, the relevant theories to strengthen and harmonize bilateral relationships and conflict resolution are: ‘FDI inflow and bilateral political relationship, problem workshops, creation of international regime, and international organizations (IOs) brokered bargaining.’

Applicable policies in bilateral relationships and conflict resolution are: ‘international political alliances, conflict, cooperation, and trust, bilateral relations, defense diplomacy, bilateral economic relations, bilateral diplomacy, nonalignment with equal friendships for all and diversification, an equal and respectful but not reciprocal relationships, leaders’ visits and diplomatic conflicts, third party intermediaries, enduring rivalries, pursuit of legal settlement, compromise or escalation or maintenance of status quo or swapping of territories, and uti possidentis or ground realities.’ The relevant policies to strengthen and harmonize bilateral relationships and conflict resolution are: ‘bilateral relationships, defense diplomacy, bilateral economic relations, bilateral diplomacy, nonalignment with equal friendships for all and diversification, an equal and respectful but not reciprocal relationships, leaders’ visits and diplomatic conflicts, third party intermediaries, enduring rivalries, pursuit of legal settlement, compromise or escalation or maintenance of status quo or swapping of territory, and uti possidentis or ground realities.’

## **Conclusion**

Important factors applicable in bilateral relationships and conflict resolution are strategies, models, theories, and policies. In simple term, strategy is a long-term plan intended to achieve. An example to follow or imitate is a model. An idea to justify a course of action is a theory whereas law, regulation, and procedure used is a policy. Strategy embodies interest based priorities, which has short, medium, and long-term implications for a country. Model gives template that guides in constructing a system. Theory is essential tool for statecraft. Guidance, consistency, accountability, efficiency, and clarity on how an organization operates are provided by policies. After discussions, the following relevant important factors; strategies, models, theories, and policies applicable to strengthen and harmonize bilateral relationships and conflict resolution; are highlighted.

- a. Relevant strategies: ‘progressive nationalism, frequent dialogues and visits at high level, border diplomacy, pushing into regular constructive dialogues, playing diplomatic roles by a third country, and using international boundary research unit (IBRU).’
- b. Relevant models: ‘geo-economic and territorial project model of cross-border integration, bilateral trade flows, and partial settlement in resolving disputes.’

c. Relevant theories: 'FDI inflow and bilateral political relationships, problem workshops, creation of international regime, and international organizations (IOs) brokered bargaining.'

d. Relevant policies: 'bilateral relationships, defense diplomacy, bilateral economic relations, bilateral diplomacy, nonalignment with equal friendships for all and diversification, an equal and respectful but not reciprocal relationships, leaders' visits and diplomatic conflicts, third party intermediaries, enduring rivalries, pursuit of legal settlement, compromise or escalation or maintenance of status quo or swapping of territory, and uti possidentis or ground realities.

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**Scenarios of Potential Unconventional Security Threats as Public Policy Concern for Nepal**

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**Abstract**

*This paper is about drawing different scenarios of potential unconventional security threats in Nepal as a major public policy concern. However, not much work has been done so far in this issue so far and therefore need greater attention. The aim of this paper is to draw different potential unconventional security threats in Nepal. While analyzing the unconventional security challenges, I have used the analytical framework of four conceptual parameters like a) Understanding and commitment of domestic actors, b) domestic coping capacity, c) external geo-strategic interests and d) Sudden devastations and natural calamities. Based on these parameters I have drawn three different scenarios of unconventional security and consequent security risks. The methods used to collect primary and secondary data were observation, content analysis, in-depth interviews and literature review. This paper concludes that unconventional security situation depends on domestic coping capacity, commitment of policy decision makers, degree and intensity of external geo-strategic, political, economic, and other security interests and frequency and degree of natural calamities. The paper concludes that Nepal is in potentially high risks of unconventional security challenges and national unity is essential to handle with the future potential unconventional challenges.*

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## **Introduction**

The global context is rapidly changing. Existing power relations are altered, traditionally powerful countries are losing their power grip and new power centers are emerging and expanding. In the same way, the security dynamics is also changing and new concepts, perspectives and issues are emerging and dominating global security debate. Powerful (in terms of military, economy, research and education, science and technology, etc.) countries are heavily engaged in new security debate (such as USA, UK, members of European Union, Canada and many others).

The purpose of this paper is to document latest unconventional security issues and related security challenges of Nepal as policy concerns.

For the purpose of this paper unconventional security (UCS) is elaborated as nontraditional or non-military security concerns such as water security, food security, health security, environmental security, climate security, economic security, social security, poverty, and so on, in absence of them create security challenges. UCS also covers terrorism, transnational crimes, cyber security, artificial intelligence, disasters and natural calamities, and their nexus (Upreti et.al, 2023).

Similarly, for the purpose of this paper, public policy is defined as a roadmap of a government to deliver its responsibilities as per the constitutional spirit and provisions and to achieve for the wellbeing of people (Rijal & Upreti 2022). It entails wide range of provisions including, constitution, laws, strategies developed for the effective implementation of the state responsibilities.

## **Methodological Notes**

The information required to develop this paper is collected by using observation, one-to-one in-depth interview, review of literature, and content analysis of newspapers and social media focusing to main unconventional security issues such as natural calamities and disasters, refugees, pandemics, environment insecurities and climate risks, food insecurity, water insecurity, insecurity from religious extremism, bad governance, violation human right and transitional injustices, contestation in citizenship issue, trade concerns (including blockade), insecurity posed by advancement of information technology and artificial intelligence, as some of major sources of insecurity.

This paper is being a synthesis of the works done by the author in the last 15 years. It is developed based on own observation, knowledge and experiences and complemented by synthesis and reflection from the perspectives, opinions, viewpoints of hundreds of experts, opinion makers, policy makers, activists, researchers and academics working in the unconventional security and public policy debates. The both sources were further strengthened by secondary sources. Hence, the methodology implied in this paper is implicit and different than the standard survey type having standard sample-size, which could be new to those who are not familiar with this approach of writing.

I have also amply utilized secondary sources of information from print materials and websites for substantiating the arguments in the paper.

## **Findings: Major Unconventional Security Issues as Major Source of Insecurity**

In this section, I am presenting the findings concerning some of the key unconventional security related policy issues to be dealt by government. Current global context is highly volatile and insecure because of multiple complexities (such as climate change effects, poverty, inequalities, tension between powerful countries e.g., USA-China, USA-Russia, India-China, India-Pakistan, and so on).

According to wisevoter.co (a web portal operates based on the leadership principles of George Washington and provides information, insights, and tools that amplify democracy in the modern age) currently in 2023, Afghanistan, Central African Republic, Ethiopia, Libya, Mali, Myanmar, Somalia, Syria and Yemen are facing civil war, whereas Algeria Benin, Burkina Faso, Cameroon, Chad, Democratic Republic of the Congo, Ghana, Iraq, Ivory Coast, Mauritania, Mozambique, Niger, Nigeria, Sudan, Tanzania, Togo, Tunisia, and Uganda are suffering from terrorist insurgency. Likewise, Colombia and Mexico are fighting drug war. Likewise, Russia and Ukraine are in active war. Similarly, South Sudan is facing serious ethnic violence. Poor and weaker countries are affected more from such insecure environment. Hence, it is a high time for policy makers, decision makers and key actors of country to proactively act on minimizing from these security risks. Some of the major unconventional security risks are discussed below:

### **Natural Calamities and Disasters**

Disasters and natural calamities are related to extremes of or catastrophes from severe weather, earthquake, forest fire, flash flood, land and mudslides, hurricanes, volcanoes and so on and they pose serious threat to human health and safety, property, critical infrastructure, and consequently national security (Matthew and Upreti, 2018; Mandel, 2002). During the time and aftermath of natural calamities and disasters, people witness and psychologically feel helpless, insecure, confused and undergone in the stage of trauma (Mandel, 2002). Life and livelihoods of affected people were severely disrupted.

Earthquake is one of the major sources of insecurities and causes of billions of damages and thousands of human lives. We have recently pushed a research paper which highlights the devastating effects of 2015 earth quake as, "*According to the Post Disaster Need Assessment Report (PDNA) published in late 2015, 8,790 people lost their lives, 22,300 were injured, and more than half a million houses were destroyed or damaged, affecting 8 million people--almost one-third of the population from 31 of the country's 75 districts. 14 of the 31 affected districts were declared as 'crisis-hit;' another 17 districts were deemed partially affected. The greatest damage took place in rural areas, leaving poor and vulnerable people largely alone for extended periods*" (Mathew and Upreti, 2018, P4)

The aftermath of disasters and natural calamities always creates deep insecurity, instability and escalates pre-existing problems in society. It promotes social injustice, inequality, mal-governance, corruption and irregularities. It further severely undermines access to livelihood options, clean water, food, property, homes, health care, and

children's education. Manipulation of this situation by evil elites consequently poses severe threats to national security (Mathew and Upreti, 2018).

Nepal is one of the high flood risk countries because of its terrain, nature of flash floods and weak water management capacity. According to a report prepared by the Asian Disaster Reduction Centre, *"The fragile geology and steep topography has made Nepal the 20th topmost disaster-prone country in the world. Among 200 countries, Nepal ranks 4th, 11th and 30th with regard to relative vulnerability to climate change, earthquake and flood hazards respectively. It faces high magnitudes and intensities of a multitude of natural hazards such as flood, landslide, earthquake, fire, cold waves, hailstone, windstorm, thunderbolt, cloudburst, drought, Glacier Lake outburst flood (GLOF), avalanches and epidemics. Unstable steep slopes and fragile geological formation of a young mountain range with heavy monsoon rainfall leads to a wide range of geological and hydro-meteorological disasters across the country. The variation in geological characteristics, together with torrential rain during rainy season, result in landslides, debris flows, floods, etc."* (Khanal, 2019: p. 7).

Several time flash floods have caused severe damages in Nepal. In the recent history, the flood of 1993 in Central Nepal, the 2008 Koshi flood caused by breakage of embankment of Koshi Barrage, severe floods of the 2013, 2014 and 2017 in the mid- and far-western regions of Nepal and the 2021 September 6th floods of Kathmandu Valley (especially Bhaktapur) had not only damaged billions of properties but also took human life and escalated fear, insecurity and tension in the affected areas.

Forest fires are causing devastation in Nepal and its trend is increasing over time. Thousands of hectares of forests are damaged by forest fires annually and caused worth of billions of damages. Intensity and frequency of forest fires is higher in Sudurpaschim and Madhesh Provinces. A recent research findings states *"The 2001-2020 data revealed increasing forest fire incidences. Seasonally, pre-monsoon appeared to have higher frequencies of forest fires. By province, the Tarai and Siwalik regions of the Sudurpaschim Province, Madhesh Province, Lumbini Province, and Bagmati Province are susceptible to fire. In terms of fire risk, the Tarai-Siwalik region of Sudurpaschim and Madhesh Province are at very high forest fire risk. In terms of environmental loss and damage, every year on an average, 3,098 fire incidences occur resulting in damage to 172,040.65 hectares (ha) of forest and biomass loss of 7.07 million tons per year accounting to emission of 3.30 million tons of carbon per year. During 2020-2021 period, a total of Nepalese Rupees (NPR) 1890000 (USD 15240.70) was lost due to the damage incurred by forest fire. Likewise, from 2007 to 2021, 71 human casualties have been recorded. Both natural and anthropogenic factors are responsible for the occurrence of forest fire in Nepal. Thus, for the protection of forests, properties and lives, strict forest fire mitigation policies and practices ensuring sustainable forest fire management is crucial."* (Bhujel et. al, 2022, p. 1).

## **Refugees**

Refugee issue is becoming not only an effective tool for international community to engage in Nepal as per their vested interests but also a highly contested domestic issue

of politics. In the recent years, it even become source of easy income for high profile criminals, which was exposed once an organized crime case against 31 people was investigated by police and registered to Kathmandu District Court by Kathmandu District Attorney in late May 2023. This case has raised serious concern of national importance as it was related to human trafficking, organized crime, corruption, abuse of authority and so on.

According to UNHCR, Nepal hosts around 20,000 refugees mainly from Tibet, Bhutan and some other states. The large influx of refugees was arrived in Nepal from Tibet in 1959 and Bhutan in 1990-1991. The number of refugees residing in Nepal is not significantly changed in 2021 compared to the previous year (2020). In both year total number remained at around 19.57 thousand.

### **Health Disease, Epidemics and Pandemics**

Frequent appearance and spread of different types of diseases, epidemics and pandemics have caused perennial source of insecurity and tension and ultimately becomes issue of human security and consequently appears as an integral part of national security. Responsible policy makers most consider addressing such issues before becoming problems.

Nasana Bajrachary (in 19 September 2020) nicely documents the 'history of epidemics in Nepal' which was published by onlinekhabar, in the context of unprecedented Covid-19 pandemic. She defines pandemic as an outbreak of a disease spreading quickly and affecting a large number of people over multiple countries or continents affecting an even higher portion of the population at the same time. She has stated that the cholera was first recorded in Nepal as an epidemic in 1823 and the largest cholera outbreak was reported in 2009 in Jajarkot with more than 30,000 cases and more than 500 deaths).

Another pandemic Nasana lists is Kala-Azar (a chronic and fatal parasitic disease that attacks internal organs, particularly liver, spleen, bone marrow, and lymph nodes), which was first in the 1960s in the western hilly region of Nepal. A total of 25,890 cases with 599 deaths were reported during the year 1980-2006. Another epidemic she stated was Bubonic Plague (a zoonotic disease), which was first recorded between 1960-1962, in Rupandehi and Mahottari districts with 150 cases and in October 1967 in Bajhang. The fourth epidemic according to her was malaria (a life-threatening disease spread from bite of Anopheles (female) mosquitoes). The first outbreak of malaria was 1974 from Kapilvastu, Rupandehi, and Nawalparasi districts followed by 42,321 cases in 1985 and 29,000 in 1991. Since then, in October 2006 at Banke district with 1,200 cases and 32 deaths, 3,900 cases in 2010 and 585 cases in 2018.

Similarly, the fifth epidemics Nasana stated is Encephalitis (brain swollen) and spread to humans through bites of Culex mosquitoes. Its first outbreak occurred in 1978 in Rupandehi district. Then, it appeared in Sunsari, Morang, and later in all 23 districts of Terai. An outbreak of encephalitis was also reported in Kathmandu valley in In 1997 too. The sixth epidemics she mentioned were measles (an infection caused by the rubella virus) and reported in Nepal from 1994 to 2002, with approximately 90,000 cases per

year.

Other common health related disease-causing human insecurity in Nepal are chronic obstructive pulmonary disease, tuberculosis, ischemic heart disease, lower respiratory infections, cerebrovascular disease, common cold, scrub typhus and pneumonia; which are common part of human security concern. Once they are not able to manage properly and results detrimental consequences it becomes national security concern.

Once these diseases create health problem to large number of populations of the country it becomes source of multiple malpractices (corruption, manipulation, and biases in treatment or medication) and ultimately becomes source of social and political tension and insecurity.

### **Environmental Insecurity**

Referring to the Environmental security definition of the Russian Federation, Landholm (1998, p .12) states, “Environmental security is protectedness of natural environment and vital interests of citizen, society, the state from internal and external impacts, adverse processes and trends in development that threaten human health, biodiversity and sustainable functioning of ecosystems, and survival of humankind (Upreti, et.al., 2013, p. 211-212). From this definition it is clear that is protecting natural environment is strategically important to safeguard vital interests of citizen, society and state from adverse impacts on human health, biodiversity and sustainable functioning of ecosystems, and survival of human being.

### **Climate Insecurity**

Many types and varied degree of insecurities arising from climate change are already evident in Nepal. For example, prolonged dry winters and wetter monsoon summers with increased rainfall has created new challenges (e.g., shift in flowering and fruiting time; change length of crop maturity, etc.) in agriculture and that could cause food insecurity in the long run. In the recent past huge population of Nepal is affected by river flooding. These frequent flooding were related to erratic rainfall and said to be the effect of climate change. Mudslides and landslides, shift in agricultural season, glassier melts and alteration in the river systems and food production systems are not only creating livelihood insecurity (obstructing subsistence farming, herding and fishing) and food insecurity but also posing economic stress and becoming a major source of insecurity. All these events a are said to be the adverse effects of climate change. These issues are of great policy concern and must be addressed by policy.

The climate change is not because of developing countries like Nepal. It was the product of industrialization and consumerism of western countries (IPCC, 2021). Hence, they are and they should be responsible for emitting greenhouse gases including carbon dioxide and methane. However, developing countries are suffering more form these climate change effects (DCA, 2021). It is reported that climate change has adverse effects on health and livelihoods of Nepali people. Extreme weather events have caused displacement, increased hunger, altered agriculture practices and exerted pressure on mental health (DCA, 2021). Series of publications of ICIMOD have demonstrated the

potential devastating effects of climate change in Nepal and Hindukush Himalaya region and therefore need urgent polity attention and action.

### **Food Insecurity**

Susceptibility to natural disasters like drought, earthquakes, floods, and landslides, armed conflict and political tension, distortion of food market by monopoly players fluctuation of market prices, poor storage capacity and regulations accelerate food insecurity and even affected more to women and children (Ghale, 2023; 2017). Low productively, lack of agricultural mechanism, poor governance, monopolistic Indian market, wrong subsidy policy and lack of political commitment to advance Nepal's agriculture sector are some of the factors contributing to food insecurity and consequently posing challenge in national security (Upreti et. al., 2023). Further, limited land resources, low productivity, weak storage, processing and distribution facilities, poor access to food in remote areas and civil war have cause food insecurity in Nepal (Upreti et al., 2016). Similarly, rain fed dependent agriculture, low investment in protecting indigenous agriculture (NPC & WFP, 2019).

Food security is potentially a most serious national security concern, if we are not able to change the current pattern of food dependency (Upreti et. al., 2079 BS). According to the data of Department of Customs Nepal had imported agriculture products worth Rs 378.60 billion in 2021/22, and Rs. 323.66 billion in 2020/21. Means every year the import is increasing. For example, we had imported food items of Rs. 55 billion more in 2021/22 than in 2020/21. Our agriculture import is largely from India and such reliance is highly futile in the context of Indian history of series of blockades in the past.

At present our agriculture is not competent with Indian agriculture because of heavy subsidy to Indian farmers. Further, our policy on agriculture is wrong to protect Nepali agriculture. We are totally reliant on hybrid seed and ruined our local seed system. If we are not able to get seed on time, it will not only collapse our agriculture but also impose famine. Hence, Nepal must have agriculture policy that promote and protect Nepali agriculture, prevent ruining of Nepali agriculture products market. It is urgently needed to end the domination of Indian agriculture products in Nepali market, start registration of genetic resources available in Nepal, protect seed and germplasm and get rid of external seed dependency (Upreti, et al., 2079 BS).

### **Water Insecurity**

Though Nepal is rich in water resources, it is facing water scarcity because of combination of poor water management, climate change and a rapidly growing population in urban and peri-urban areas. According to UNICEF, 'every day children dying form preventable diseases caused by poor water, and a lack of sanitation and hygiene. Its state "10.8 million people in Nepal do not have access to improved sanitation, and 3.5 million do not have access to basic water services." Nepal's water and sanitation policy is not able to provide improved and equitable access to safe and sustainable drinking water and sanitation services to all children and their families. It highlights that clean water, basic toilets and good hygiene practices are lacking and contributing to survival and

development of children. Children under five are mainly dying from water- and sanitation-related diseases. Our policies are not able to prevent death of children from preventable diseases caused by poor water, and a lack of sanitation and hygiene. In this context, UNICEF states, “10.8 million people in Nepal do not have access to improved sanitation, and 3.5 million do not have access to basic water services.” Hence, this issue is directly related to security of nation.

Policy makers are not able to deal with resilient water system because they do not internalize reasons of water security. In this context, a recent study (Maskey et al., 2023, p1) states, "water security cannot be ensured by only dealing with water inadequacy without building a resilient water system and robust institutions. We found that water scarcity has affected other components of water security such as equity, quality, and affordability".

UN World Water Development Report 2023 has presented worrying future water crisis scenarios if policy makers and planners do not work proactively in a collaborative and concerted way to deal with this issue.

### **Religious Extremism**

International Religious Freedom Report 2022 of the State Department; Christian missionaries target the birthplace of Buddha in Nepal. The currently radicalized debate on Hindu state v/s a secular state and rapidly expanding Christian religion in Nepal is understood by some section of society as sponsored anti Hindu orchestration and growing international interests indicate complexity of the debate and ultimately poses potential security risks if not dealt it properly.

A recent study indicates a divided population based on age on the religious issues. Its state, "the mindsets of most of the elder populations interviewed still want Nepal to be the only Hindu state in the world, whereas the active young-age (youth) population is more inclusive and is happy with the secular nation" (Suvedi, 2021). It is not good to see the country's population to be divided in this way as it poses possible security risks, as religion is highly sensitive and emotional issue.

### **Synthetic Medicines**

Security risks are also coming from development and use of synthetic medicines (for example, of synthetic opioids), which are chemical substances synthesized in a laboratory to use in the brain as natural opioids like morphine and codeine for analgesic or pain relief effects, fifty times more potent than heroin. Often the pharmaceutical industries test such medicines in poor and weak countries and therefore there are always risks of introducing such medicines in Nepal. Hence it can be a future security threat for Nepal and therefore policy makers must proactively work on the policy framework that prevents such malpractices and testing.

### **Governance Problem**

Mal-governance seems widespread in Nepal. State employees, members of institutions, and individuals tasked with carrying out state responsibilities often engage in corrupt,



biased, and negligent behavior. They may refuse to respond to the concerns of those they are supposed to serve, act opaquely, deceive others, commit fraud, implement manipulative policies and practices, cheat, and simply do nothing. Such practices are not only creating deep frustration, hatred and helplessness to right holders, citizens or beneficiaries of services but also ruining relationship between state and people, a strong binding force for stability and national security. Consequently, they raise voice against the government and or state and at the end state-people relations are ruined. This situation is structural causes of national insecurity. Therefore, the responsibility of the state is to improve state people relations by improving service delivery and ginning confidence of general public, which is possible only through good governance. The current situation of Nepal is in the stage of ruined relations between the state and people and therefore proactive policies are urgently needed to address this bad-governance problem to improve state people relations.

### **Human Right and Justice**

Continuous violation of human rights and lack of proactive engagement in addressing pervasive injustice existed in society or new injustice created by the state through biased policies, strategies and action often leads to develop negative feeling in the mind of citizens and consequently they start opposing the state or even revolt against it.

Now human rights violation is an international issue and goes beyond the state boundary. Further, human right is also becoming an effective tool of powerful nation to control internal affairs of human right violating countries. So, respecting human rights of own citizen and addressing issue of injustice is the best way of avoiding to make country a playground of international power centers. Hence, policy makers of country must develop proactive policy framework to address this concern.

### **Citizenship Issue**

Citizenship is a highly sensitive, blatantly contested and foundationally important issue. Therefore, it has to be cautiously dealt with the principle of 'citizenship is only for rightful citizens'.

The present history, citizenship was strategically and tactfully utilized by powerful neighbors to dissolve own nation and to integrate with another nation. Latest example is Sikkim (Datta, 2013). Therefore, policy makers have to be cautious to deal on citizenship issue, thinking beyond their vest political and individual interests. Countries like Nepal must be extra cautious because it has open border with countries having billions of populations. Hence, citizenship issue is a major national security issue to be dealt unanimously, without division of political parties.

### **Trade Dependency Related Insecurity**

Being a landlocked country, Nepal is has no direct connection with sea, even though landlocked countires have right of access to sea. Access of Nepal to sea is not yet pragmatically attractie because it cause delays and transport costs are high.

Further, Nepal has ineffective and inefficient customs and transit transport procedures.

Consequently, being landlocked mountainous country with poor governance and having bureaucratic failure, Nepal is perennially facing serious problems in trade, transportation, and associated issues (Ghimire et al., 2080BS). It is even complicated by political division, earthquake and other natural disasters, poor infrastructure and non-cooperation from India.

It is observed that Nepal has very little export and extremely high import, low quality of products and good, wrong trade policy, high cost of production, complicated bureaucratic administrative procedure, low productivity, weak trade diversification. Even worse is that our neighbour India has imposed blockade four times i.e. 2019 BS, 2027BS, 2045BS (1989), and 2072 BS (23 Sept. 2015) (Pant, 2018).

India imposed blockade in 1970, because Nepal had built the Araniko Highway linking Kathmandu with China and opened Tatopani as a trade route. India became angry and obstructed the movement of goods to Nepal by not extending the expired 1950 Trade and Transit Treaty. Similarly, India imposed the 1989 blockade protesting purchase of Chinese Weapons by Nepal. This blockade was started on April 1989 continued for 15 months with complete restriction of movement of essential commodities such as food products, salt, oil, spices and petroleum products (Pant, 2018). The 1989 blockade was also started once the expiration of the trade and transit treaty.

The blockade imposed by India on 2072 BS (23 September 2015) was expressing dismay immediately after the promulgation of new Constitution on September 20, 2015. In these all blockade, Nepal faced severe difficulties in terms of livelihoods of people, ruined economy and ultimately became the issue of national security. In this context, policy makers of Nepal must work hard to provide conducive policy and legal frameworks that promotes self-reliance and less dependence to India.

### **Artificial Intelligence**

On 28 April 2023, the Economist (a famous magazine) published the assessment of Yuval Noah Harari (popular historian and philosopher of the present time). According to the Economist Harari argues that AI has hacked the operating system of human civilization. Further, he goes saying "storytelling computers will change the course of human history. ...Over the past couple of years new AI tools have emerged that threaten the survival of human civilization from an unexpected direction. AI has gained some remarkable abilities to manipulate and generate language, whether with words, sounds or images. AI has thereby hacked the operating system of our civilization".

Even it is feared that AI could be used for malicious purposes, such as cyber-attacks, terrorism, or warfare. AI-powered weapons could be developed that are capable of making autonomous decisions about who to target and how to attack, which could lead to devastating consequences. Possibility of using AI for unintended or harmful ways for strategic gain by some manipulators exist and that could pose serious threat to humanity. AI is new development and still less understood, it is quite difficult to predict all potentials risks. But mindful policy makers can proactively engage in analyzing and updating the AI advancement and prepare the response strategy accordingly.

## Cyber Security

In the recent decades, cyber insecurity is becoming a major security threat and therefore demands strong cyber-security capacity to address it. According to the Nepal Centre for Security Governance major cyber securities related issues of are a) identity theft, b) banking frauds, c) hacking, d) cyberbullying, f) online threats & intimidation, g) different forms of online violence against women, h) revenge porn, i) copyrights, j) social media crisis, k) denial-of-service (DoS), l) online child abuses.

Cyber security relates to focus, strategy, processes applied to safeguard and secure assets used to carry information of an organization from being stolen or attacked. Therefore, it requires extensive knowledge of possible threats such as viruses or other malicious objects. Identity management, risk management, and incident management form the crux of the cyber security strategies of an organization. Hence, it is urgent to develop standardization and integrated cyber policy and law that prevents and or minimizes such cyber-crimes.

### Unconventional Security as Public Policy Concern: An Analysis

The following is the analytical framework for analyzing potential unconventional security threats as public policy concern for Nepal. Analytical framework helps to organize the arguments and provides the conceptual context to develop path of analysis.

In this section, the analyses of the findings are presented with possible major category of scenarios. The first scenario is: high understanding and commitment of domestic actors (UCDA). The second scenario is: low UDA, low DCC and low EGI. The third one is in-between the first and second scenarios.

**Figure 1**

*Analytical Framework for Unconventional Security Risk in Fluid Policy Context*

Domestic Coping Capacity (DCC): Research and analysis, technological advancement, negotiation skills, resources	Understanding and Commitment of Domestic actors (UCDA): Context, content, risks and threats, actors intentions
<b>Unconventional security threats</b>	
External Geo-strategic Interests (EGI): Political, economic, security	Sudden Devastations and Natural Calamities (SDNC)

*Note.* Designed by Author (2023).

### Scenario 1: High UCDA, High DCC and High EGI

The section three demonstrated that different potential unconventional security threats exist and they are great public policy concerns for Nepal. Hence, they have to be dealt through appropriate policy legal interventions by the government, for which proper understanding and full commitment of domestic actors, strong domestic coping capacity, proper research and analysis, use of modern technology, negotiation skills, and financial resources are required.

If key domestic actors are able properly analyze context, content, risks and threats from unconventional security issues, they will engage more proactively to understand and internalize the complexity of unconventional security threats and ultimately expected to their work full commitment. If this happens, country will better prepare to deal with external as well as domestic challenges. They will develop better policy; invest in negotiation and capacity building of negotiators and other state apparatus.

Though, external geo-strategic interests are often beyond our domestic control. However, if Nepal meaningfully engages diplomatically, politically (at different levels such as political parties, government official, military and high-profile authorities like prime minister and president) and socially (at civil society, academic, religious, business community level), it can minimize, neutralizes or shape external geo-strategic interests.

Nepal must develop domestic coping capacity (DCC) to deal with challenges posed by unconventional security. This means we have to strengthen research and analysis, promote e-governance and maximize use of information and technology, develop collective understanding and strategy for connected action. The first and foremost precondition to cope with the security challenges presented in the third section is to create and strengthen research institutions and investing in analysis capacity development of human resources. Strengthening National Security Council (NSC) and developing its Secretariat as a premium think tank. Further, it is equally important to develop capacity of other important institutes like National Defense University, Policy Research Institute, Institute of Foreign Affairs, Water and Energy Commission, think tank institutes of universities and other research organizations to accomplish good quality research and analysis. This capacity will not only help policy and political decision makers in dealing with unconventional security issues but also respond to crisis created by Sudden Devastations and Natural Calamities (SDNC).

This is best case scenario and it is desperately required for Nepal. However, looking to the current attitude of behaviors and actions of majority of bureaucratic and political leaders, it is less likely.

### **Scenario 2: Low UCDA, Low DCC and Low EGI**

In this scenario, the situation is worse and Nepal move toward undesirable direction. In this situation, understanding and commitment of domestic actors (UCDA) like political party leaders, ministers, senior bureaucrats and policy and decision makers about the broader context, contemporary contents of emerging security risks and threats becomes weak, biased or incomplete or incoherent. At this scenario, the key actors are either ignorant or negligent or deliberately manipulate situation for multiple vested interests. In this scenario, intentions and actions of key actors are questionable and criticized by public. In this scenario, domestic coping capacity is weak because of lack of commitment and understanding of key actors. Further, circumstances become favorable for increase activities of external geo-strategic interests in all political, economic, security concerns because of actions and behaviors of key political decision makers. Consequently because of the poor UCDA and EGI, the domestic coping capacity (DCC) on research and analysis, technological development, negotiation skills, resources mobilization as well

as preparedness for response are extremely poor and risk of insecurity in country is high.

In the SDNC scenario, proper handling the natural calamities and disasters situation is not feasible because the key decision makers are not able to cope with sudden devastations and natural calamities like earthquake, floods, landslides and mudslides, glassier melt and avalanches, prolonged droughts, erratic rainfall and their combined effects on security.

### **Scenario 3: In-Between the First and the Second Situation**

In this scenario, situation of understanding and commitment of domestic actors on the present context, unconventional security contents and the associated risks and threats are blurred, actors are confused and assessing their intentions is difficult. It is because of their inconstant behavior, confusing understanding and contradictory actions. Also, level of duality is high (frequently shifting their position either this or that extremes). Key political decision actors themselves show confusing positions and behavior about growing external geo-strategic interests. Hence, they knowingly and or unknowingly oppose and or support EGI in their political, economic, security related decision making. So, in such situation, strengthening and sustaining domestic coping capacity and advancing research and analysis about unconventional security, promoting technologies and enhancing negotiation skills is extremely difficult if not impossible.

In this scenario, coping and or dealing with sudden devastations and natural calamities like earthquake, floods, landslides and mudslides, glassier melt and avalanches, prolonged droughts, erratic rainfall and their combined effects on properly handling situation of SDNC is severely weak.

### **Conclusions**

Nepal is possibly going to face potentially critical unconventional security challenges in foreseeable future if not start proactive strategies. Public policy makers, political leaders and bureaucratic leaders must first properly understand the serious implications of unconventional security in the country and then work concertedly.

Some of the major unconventional security challenges are related to water insecurity, artificial intelligence, bad-governance, spreading epidemics and pandemics, growing food-insecurity, vulnerability form disasters, abuse of information and technology, frequent natural calamities, influx of refugees, growing religious extremism, and many others. Therefore, right public-policy and regulatory framework, full commitment of political leaders and government officials with patriotic attitude, responsive behavior and concerted action are essential to address potential future unconventional security challenges.

Based on the scenario analysis with the use of specific indicators, it is concluded that we are going to the direction of high potential unconventional security risks because of increasing external geo-strategic interests' penetration through political, economic, security spheres.

Nepal's coping capacity is weak because Nepal has not appropriately invested in research and analysis, technological advancement, negotiation skills, and resources mobilizations. It is because of poor or superficial understanding and low commitment of key domestic actors. In such a situation, it is less likely to properly handle the situation of future sudden devastations and natural calamities.

So, it is urgently needed to create environment of strengthening and promoting situation of scenario one presented in the preceding section.

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**Outcomes of Reservation Policy Implementation in Armed Police Force, Nepal**

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**Abstract**

*Nepal adopted the reservation policy with the motive to ensure the participation of women and marginalized groups through the Interim Constitution, 2007 and the Constitution of Nepal 2015. APF, Nepal has adopted the reservation system in the recruitment process as a government institution. However, it is necessary to understand the outcome of the reservation on its overall recruitment policy, which this article has tried to explore. This article adopted an analytical approach based on both primary and secondary sources of data. In Nepal, due to its social structure, diversity, and historical marginalization, reservation ensures equal participation, provides opportunities for socio-economic development, and represents marginalized communities. The reservation policy has been instrumental in making the APF in Nepal an inclusive force. The findings suggested that APF, Nepal should develop a time-bound reservation policy and revise it at regular intervals. The study did not find instances where the APF was forced to recruit incompetent personnel due to the reservation policy. On the contrary, reservists have performed well, with some even receiving national recognition for their contributions. Regular reviews of the policy are recommended to enhance the effectiveness of reservation policies in the future. Additionally, community upliftment through development programs focused on education and reservations based on economic capabilities were identified.*

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## Introduction

Any group of the population or community feels to be included in the mainstream of society and state is social inclusion (Drucza, 2016). The concept of people-centered sustainable development seeks maximum participation of people in the decision-making process irrespective of their gender, culture, caste, ethnicity, language, religion and inhabitation. Thus, in order to attain sustainability in development it is equally important to have the inclusive involvement of people in all spheres of decision-making and development. Social inclusion is often defined as socio-economic and political empowerment of the communities who need special attention of the state to enable them to participate in the mainstream of development activities. Therefore, social inclusion is considered as a process of promoting equitable access to both economic and social benefits including access to state institutions and administrative structures without any discrimination on the grounds of caste, descent, gender, religion, ethnicity, or other matters. Inclusion for this purpose is aimed at equal participation of the marginalized groups in development activities with proportional representation in decision-making processes, while also promoting their access to social and economic opportunities with social justice. Social inclusion is the joint effort of institutional reform to remove existing institutional barriers and capacity enhancement of diverse individuals and groups to increase their access to development opportunities. It is used to describe the complementary approach that seeks to bring about system-level and policy change to remove inequities in the external environment. Further, it is the removal of institutional barriers and the enhancement of incentives to increase the access of diverse individuals and groups to development opportunities (Dhakal, 2010).

Nepal is a country of a multiethnic, multicultural and patriarchal society. However, due to the structure of power vested on a few groups of people and society made it difficult for different people of various groups to climb the social ladder. Further, the systems of the government remained centralized for most of the periods in the history of modern Nepal, making it difficult for the development program of the government to reach in each and every corner of the country leading to unequal development and representation (Thapa, 2019). The issues of such inequality were the major contributing factor to motivating people against the government during the 10-year insurgency in Nepal (Macours, 2011). Hence, when the peace was established and the Maoist (the then insurgent) came into the mainstream politics, raised the provision of reservation in the country. As per prevalent Civil Servant Act, 2007, it has six clusters i.e., women thirty three percent, *Adiwasi/Janajatis* twenty-seven percent, *Madhesis* twenty-two percent, *Dalits* nine percent, differently able five percent, and backward areas four percent .

Armed Police Forc, Nepal (APF), which was established in 2001, has adopted the policy of reservation since 2064 to make the force more inclusive in nature however, being a security force, it does not recruit differently able person. According to the APF Regulation, 2072, 45 percent of the total recruitment has been reserved for different categories. Among the 45 percent, 20 percent is reserved for females, 32 percent of indigenous groups, 28 percent for *Madheshi*, 15 percent for *Dalit* and 5 percent for

people from the background category. Since then it has contributed towards the development of inclusive force. However, the questions remain for how long the reservation should be continued, has it been effective and should it be adapted to meet the requirement in the future.

The objective of the study is to provide insights into the reservation system in Nepal, examine the propose measures to improve its implementation within the APF, Nepal to create a more inclusive and effective institution.

This paper deals within the human resource management of the APF, Nepal and the reservation policy of the government. This research has analyzed the reservation policy of the government and explore how APF, Nepal has implemented reservation system in its own recruitment policy.

### **Review of the Literature**

Dhakal (2010) stated that reservation is for specific communities only and no one except from the entitled communities can compete in those seats. Thus, reservation is for competition within limited groups only and it is based on the principle of limited meritocracy. Like fingers of our hand, all the communities are not of same opportunity and capacity. Reservation is thus for the people whose representation in civil service is very low but cannot compete with other capable communities to enter the service. Civil service is part of the government and in a democratic system, every person of all the communities has the right to participate. The reservation system introduced in Nepal has created a conducive environment for marginalized people to enter the civil services. However, it is not as comprehensive as it needs to be. The forms of exclusion in Nepal have made different communities under-represented in the governance system. Most of those under-represented communities have got a chance through the reservation system but inclusion based on religion has not been recognized by the reservation policy. Buddhist and Muslim people are under-represented till now.

Prasai (2016) explored six types of minorities in Nepal. It is categorized not only numerically but also on the basis of access to the ruling process of the state. Caste, gender, region, religion, inhabitation and language, which have no access to the governing process are also categorized under minorities. *Dalit* is a caste, which are being discriminated as an untouchable group since the beginning of *Muluki Ain* of Nepal. Women are marginalized politically, socially and financially and treated as weak individuals. Western and far western regions of the country are very much backward in terms of infrastructure development, human resources, education and in all sectors in comparison to other regions of the country. All religions are discriminated by the state, excluding the Hindu religion. *Madhesi* is another part of discrimination by the inhabitation of the country. We can take some affirmative action toward the enhancement of minorities. Provision of proportional representation, reservation, different acts and statutes, secular state including the interim constitution and later on Constitution of Nepal 2015, made by state is also an example of affirmative action towards promotion of minorities.

Tamang (2006) identified the numerically based minorities that are *Raute, Chepang, Kusunda, Thakali, Majhi, Duma, Lepcha, Meche, Surel, Hayu, Jirel, Thami, Sherpa* and so on. Not only numerically but also access less in the state are *Tamang, Gurung, Magar, Rai, Limbu, Tharu, Newar* and so on. The indigenous Nationalities as well as women and *Dalits* are minorities from the perspectives of access less community towards the exercise of power, position and opportunity of the state. Hindu, a community follows the Indo-European culture. It is followed by *Bahun, Chhetri, Damai, Kami, Sarki*, etc. It is divided into two groups: higher caste (touchable) and lower caste (untouchable). *Damai, Kami, Sarki, Gaine, Mushahar, Chamar, Dom* and many others are called untouchables. They are called *Dalit* in Nepali society and likewise, *Harijan* in India.

Dahal (2006) analyzed that not only *Dalits*, ethnics, and women but *Madhesi* also are regional minorities, women are gender-based minority, *Muslims* and all religious groups, excluding Hindu are minorities. They are all in minorities because of discrimination and unequal treatment from the side of state. The ethnic groups including the *Dalits* and *Adibasi Janajati* have been facing number of problems like, caste discrimination, suppression, oppression and exploitation through which generating the minorities, who are not getting equal opportunities, hence government developed a policy to uplift their status.

Deo (2015) criticized about the reservation policy implementation in Nepal. Reservation is not unique to Nepal. Throughout the world, many countries, such as India and England are practicing reservation. It is a design to ensure equal opportunity for everyone. Every Nepali people wants the right to equal opportunity in higher education and in the civil service of Nepal. It is obvious that 'equality' has been the most contentious part of the slogan of the French revolution "liberty, equality, fraternity".

Pokharel (2015) analyzed the flaws in the reservation policy. Though the Government of Nepal (GoN) has adopted 'reservation' as one of the strategies to ensure adequate representation of the marginalized population in civil service, it has widened the gap between the resource-rich and resource-poor within the sub-group of reservation beneficiaries. Rather than ensuring the presence and access of downtrodden population in the bureaucracy, the policy, quite contrary to its intent, has been serving as a political tool for the privileged creamy layers in the sub-group of caste and ethnic community to reap maximum benefits. Those who really need positive affirmation within the group are still left behind.

Reservation policy was adopted in the Constitution of Nepal in place since 2007 to increase the representation of women and marginalized communities in the state bodies and civil service. However, it is limited to specific communities and has received criticism for not being comprehensive enough and serving as a tool for the privileged groups within the reserved communities. The reservation policy is aimed at addressing the unequal treatment and discrimination faced by the groups such as *Dalits*, ethnic groups, women, *Madhesi*, religious minorities, and others in accessing power, position, and opportunities within the state. There have been calls for improvement and

modification of the policy to ensure equal representation and equal opportunities for all marginalized communities.

### **Methodology**

The research paper has adopted a mixed method with quantitative and qualitative data collected from primary and secondary sources. The research used consulting library resources, the internet, and relevant journals. Information from reports of the APF, Nepal headquarters, Human Resource Department, and various publications were also considered. Both primary and secondary data were used in the study. Questionnaires were developed and distributed among 303 respondents to assess the impact of reservation in the organization. Interviews were conducted with APF personnel and other respondents to gain insight into the current situation of reservation in APF, Nepal. Secondary data were collected from APF, Nepal HQ. The study employed survey questionnaires and interviews. Separate questionnaires were designed for APF personnel and non-security personnel to understand their perceptions of the reservation system. Interviews were conducted with individuals from various backgrounds, including those who joined APF in different reservation categories, senior officials from APF, and individuals both in favor and against the reservation system.

### **Findings and Discussion**

Nepal introduced a reservation system after the end of the 2006 People's Movement. The policy was introduced via Civil Service Act 2007, in a way that 45 percent of the total vacancies in government sectors were allocated to marginalized groups of people.

### **Findings**

#### **Nepali Social Structure**

Societies have long been divided along lines of religion, gender, ethnicity, race, color, and culture, leading to a lack of justice for all individuals. Nepal is a diverse country with a complex social structure, encompassing multiple ethnic, religious, and linguistic communities. With over 125 caste/ethnic groups and more than 90 languages spoken, this small mountainous nation is characterized by diversity (Giri, 2020). The same diversity became a major challenges in inclusive development and created a disparity among the different groups of people.

To address this issue, the concept of reservation or affirmative action has been introduced. Reservation aims to correct historical injustices inflicted by the state on certain groups of people. Reservation is considered a tool for inclusiveness, primarily focusing on increasing the participation of marginalized individuals in government services, related sectors, and the education system. It also aims to develop their competitive abilities. However, this concept is not without controversy. Some scholars argue that reservation compromises merit-based selection and perpetuates discrimination by granting separate status to certain groups (Dhotrekar, 2022). Many countries have implemented reservation policies to address issues of exclusion in society. To understand exclusion, it is important to recognize that it refers to the lack of opportunities for substantial sections of the

population to meet their basic needs. The Institute on Social Exclusion at Alder School of Professional Psychology defines social exclusion as a process that systematically blocks entire communities from accessing the rights, opportunities, and resources that are normally available to members of society and are crucial for social integration (Adelman & Morris, 1973).

An advocate was questioned regarding her view on the need of reservation system, and she emphasized on the social structure as a major reason for the reservation system and mentioned:

*"Nepal encompasses a diverse society with various marginalized groups and those have been disadvantaged and underrepresented. The reservation system serves as a mechanism to promote social justice, inclusivity and equal access to opportunities."*

**Diversity and Representation**

Various tools of social inclusion include positive discrimination, the end of discrimination, equality, social security, and reservation.

The APF Regulation, 2072 in Nepal includes a provision for reservation. Out of the total workforce, 20% is reserved for females, 32% for Indigenous people, 28% for *Madheshi*, 15% for *Dalits*, and 5% for individuals from backward areas.

When asked about the need to develop inclusive security forces to security personnel recruited through the reserved quota, respondent stated that:

*"It is a good opportunity for all the marginalize groups for the enhancement of their capabilities to participate in the security service."*

It affects the fruitfulness of the organization as a tool to develop and increase harmony among all groups within organization.

**Reservation and Inclusiveness in APF, Nepal**

APF, Nepal has adopted the policy of inclusiveness since 2064 B.S. Out of the total recruits, a total of 77.94% and 0.88 % of female were selected from the open category, while remaining of the recruits were selected from different reservation categories.

**Table 1**

*Recruitment Data on Reservation*

Date	Open		Female	Indigenous	Madheshi	Dalit	Backward	Total Male	Total Female	Total
	Male	Male Alternative								
2064/9/24	10		1			1		11	1	12

2067/02/05	73			1	9	1	1	2	86	1	87
2069/11/26	20				4				24	0	24
2071/05/15	17			1	4			1	22	1	23
2073/06/05	44		1	2	4	2			50	3	53
2075/06/19	24	4			3	1	1		29	0	33
2076/08/18	36	1	1	3	9	7	1	1	54	4	59
2078/05/11	41		1	4	2		1		44	5	49
<b>Total</b>	<b>265</b>	<b>5</b>	<b>3</b>	<b>12</b>	<b>35</b>	<b>11</b>	<b>5</b>	<b>4</b>	<b>320</b>	<b>15</b>	<b>340</b>
<b>In %</b>	<b>77.94</b>	<b>1.47</b>	<b>0.88</b>	<b>3.53</b>	<b>10.29</b>	<b>3.24</b>	<b>1.47</b>	<b>1.18</b>	<b>94.12</b>	<b>4.41</b>	<b>100</b>

Note. APF Nepal (2022).

During the recruitment of females, 3.53% of the female population were recruited through the basis of the reservation policy while 0.88% were recruited from open competition. There have been fluctuations in the various years during the recruitment. 10.29 % of the people were selected from the Indigenous category, 3.24 from the *Madheshi* Category, 1.47 from Dalit Category and 1.18% from the backward category.

### Tool to Develop APF, Nepal as an Inclusive Force

Reservation is considered a beneficial tool for developing the APF in Nepal as an inclusive force. By including underrepresented communities through the reservation, the APF can enhance representation and diversity within its ranks. This inclusivity can lead to a force that better reflects the population of Nepal, fostering increased public trust and cooperation with the APF. A majority of respondents (72.3%) either agreed or were neutral regarding the evaluation of the reservation system as a means to develop the APF in Nepal as an inclusive force. This sentiment was shared by both the male and female respondents, as well as individuals of various ranks within the APF, including Senior Superintendent of Police, Deputy Superintendent of Police, Inspector, Officer Cadet, and other ranks.

### Representation of More Diverse Groups

It was found that a higher percentage of respondents (139, or 54.3%) agreed with the statement that reservation has allowed representation of diverse groups, while smaller percentages (47, or 18.4%) remained neutral. Further, a lower percentage of respondents (70, or 27.3%) disagreed with the statement.

One of the respondents, who was recruited through the open competition was questioned regarding his evaluation on reservation as a tool to develop APF, Nepal as an inclusive force. He mentioned:

*"Reservation is the tool to develop the organization as the most influential inclusive force. The provision adopted by our regulation has been fully implement as much as possible. It is the platform for the deprived societies and giving equal opportunities after enrollment in every facility of the organization without any discrimination."*

Based on the views of the respondents, it was found that reservations have become successful in making the organization more inclusive. This has more focuses on the marginalized groups those who are deprived of the opportunity in the government, and basically, it emphasizes the inclusion concept and for the enhancement of the marginalized groups.

### **Mitigating the Negative Impact**

A majority of the respondents (50%) agreed that it is necessary to focus on mitigating the negative impact. A small percentage (9.4%) was neutral, while 34% disagreed. This shows that there exist some negative impact of the reservation policy and it should be addressed to make it more beneficial.

### **Professional Benefit of Reservation**

When asked about the positive impacts of the reservation system, one of the female APF personnel who had been recruited through the reserved quota stated:

*"The diverse representation allows for better performance in specific areas due to an increased cultural and ethnic knowledge. It plays vital role in the empowerment of women and be positive towards the organization."*

There are various benefits of the reservation that were identified. Inclusiveness makes the security forces capable of integrating with the local community due to representation of such community, at the same time it has also helped in the realization of the given mandate. For example, the participation of women in the security forces has helped in assuming various roles such riot control role, disaster management and even representation during the United Nation peace keeping operations (UNPKO).

### **Revision of the Current System**

It was found that the opinions of APF personnel and civilians on whether the reservation needs revision or not. Out of 256 APF personnel, 192 (75%) believe that the reservation needs revision, while 64 (25%) do not. On the other hand, out of 47 civilians, 35 (74.5%) believe that the reservation needs revision and 12 (25.5%) do not.

Similarly, APF Nepal personnel who was recruited through the open competition was questioned on what should be done to make the reservation more effective in the future, he mentioned:

*"There should be a change to the policy on it because it also discourages the open categories. The various people also have different perceptions on it".*

On the same question, another respondent who had been recruited from reservation quota supported the view and mentioned

*"The provision of reservation is good to provide opportunity and enhancement the certain groups as per the quota system. The concerned authorities must be responsible towards adopting the system as much as they can."*

### **Impact of Reservation in Performance**

It was found that the majority (53.5%) of APF personnel and civilians believe that the reservation policy has had a positive impact on the inclusive force in APF, Nepal, while a smaller portion (23%) believes it has had a negative impact on the organization. Similar portions (23.4%) believe it has had no impact on the organization.

### **Bound to Enrolled Incompetent Security Personnel**

The majority of the respondents (97.7%) either disagreed or had a neutral stance on the statement "Bound to enrolled incompetent security personnel". Only a small percentage (1.2%) agreed with the statement. This suggests that the majority of the respondents do not believe that the security personnel enrolled are incompetent.

### **Matrix Based on Ecological Region**

The highest level of agreement was seen in the "Agree" category with 102 respondents or 33.66%. A total of 21 respondents or 6.93% strongly agreed with the statement distribution should be based on ecological region. There were 17 respondents or 5.61% who had a neutral stance and 163 respondents or 53.80% who disagreed.

When considering the distribution by the type of respondents, the highest level of agreement was seen among Officer Cadets with 20 respondents or 6.60% selecting "Agree". The lowest agreement was seen among SSPs with 2 respondents or 66.7% selecting "Disagree".

The civilian respondents had the highest representation in the "Disagree" category with 5 respondents or 1.65%. The highest representation among civilians was in the "Agree" category with 15 respondents or 4.95%.

### **Motivation to Work**

Among the respondents 50% respondents stated that maybe the reservation has motivated them to join the armed forces. The major reason for such has been due to the opportunity that they had seen which were often not available to others. Similarly, they are often representative of their groups, they are further motivated to work hard.

### **Outcomes of Reservation in APF, Nepal**

The reservation policy in security forces aims to allocate a certain percentage of positions for underrepresented communities. It has both positive and negative impacts. In Nepal, women's participation in the military has evolved over time, and they have played a significant role in making the security forces more people-friendly. The Nepali law reserves 45% of government positions, including within the APF, for the excluded groups, with specific percentages for women, *Janajati*, *Madheshi*, *Dalit*, and remote regions. According to the respondents, the inclusion of marginalized groups in the security organization has improved their lives and provided opportunities for social advancement. It has also encouraged more people to join the security forces and uplifted the image of the organization. Additionally, an analysis of APF personnel shows that a significant number of individuals from the reservation category has improved their



performance and achieved recognition for their achievements.

### **Measures to be Taken to Enhance the Effectiveness of Reservation in APF, Nepal**

It is crucial for organizations to regularly review and assess their policies, including reservation policies, to ensure they align with changing circumstances and regulations. Reforms may be necessary to accommodate these changes. The majority of respondents agreed that the current system requires a change, emphasizing the need to optimize the identification process and update the system periodically to better represent marginalized groups. APF Nepal needs to work out the details of the reservation system. If it is to be implemented for the long term, a lot of painstaking homework must be done in ironing out the kinks. The measures include the following:

#### **Community Background and Financial Condition of the Family**

It is important to develop mechanisms that specifically benefit underprivileged members of the underprivileged communities, rather than solely considering community background as a criteria. For example, the focus should be on supporting individuals from financially weak and uneducated backgrounds within *Dalit*, *Madhesi*, and *Janjati* communities, rather than benefiting individuals who have had the same opportunities as the privileged urban children.

#### **Proper Selection and Recruitment**

Tangible factors are well considered in APF, Nepal in the selection and recruitment process whereas intangibles are usually overlooked especially in the case of other ranks' selection. A mini form of Group Testing Officer (GTO), Interview Officer (IO), and Technical Officer (TO) can be implemented in the selection of other ranks as well.

Appropriate considerations on the reservation quota system should be done. Proper selection should be adhered to in all environments and across all levels. A person, without professional competency and recruited through unethical means will never be true to values and ethos, as his loyalty will always remain towards the senior officer who got him recruited.

#### **Time-Bound Strategy**

The Nepali society has long experienced consequences of discrimination and underdevelopment, resulting from societal, cultural, and religious practices. Reserved quotas have provided opportunities for marginalized communities to compete and improve their standards of living. However, there is a question of how long these quotas should be given and whether they should be provided indefinitely. The reserved quota should be seen as a tool to immediately give opportunities to marginalized groups, while simultaneously developing their knowledge and capabilities. It is important to ensure that the reservation system is periodically reviewed and assessed to determine if its objectives have been fulfilled. If the objectives have been met, the reservation system can be gradually reduced. Effective monitoring and review are essential to ensure the continued relevance and effectiveness of the reservation policy. Additionally, equal access to basic needs should be provided to all people across Nepal.

APF Nepal personnel who was recruited through the open competition was questioned on what should be done to make the reservation more effective in the future, respondent mentioned:

*"The implementation of reservation must be accompanied by effective monitoring and review to ensure its continued relevance and effectiveness."*

### **Education and Knowledge**

A well-prepared quota system to help the underprivileged demographic is not a long-term solution. Nepal needs equitable access to schools for all Nepali children. Apart from access to schools, the Nepali government needs to lift up the standards of existing schools. Only then all youngsters can receive a "jump-start" to strive for excellence in any field. This process would also be able to help the bright ones from remote corners of the country, who would otherwise not be identified. In a long way, this will contribute to the development of Nepal.

Reform is an ongoing process and for this, it is essential to regularly review and improve reservation policies to ensure those effectively serve their intended purpose. Amendments in the legal provisions may be necessary to address the issues such as unequal distribution of benefits or to ensure that marginalized groups are the primary beneficiaries of reservation policies. Organizations concerned with the enforcement of reservation policies must also focus on educating and raising awareness among marginalized groups to ensure they are fully informed and able to access the opportunities provided by the reservation system.

An advocate was questioned regarding the ways to make the reservation more effective in the future, he mentioned:

*"Proper assessment and evaluation are crucial in making informed decisions on necessary reforms in the reservation policy."*

The development of education would facilitate uplifting the overall standard of the people and provide them with the opportunity to work in different fields. Nepal government has been providing various educational developments which are being effective as well; however there has been limitation to this education system. The support from the APF, Nepal in the development of education through the welfare program would also be beneficial to uplift the marginal groups and develop the Civil Military relationship as well.

### **Reserved Quota Based on Ecological Region**

Nepal is divided into three ecological regions namely *Terai*, Hilly and Mountain region. Despite *Terai* being largely populated the reservation system for the people of *Terai* is lower than the people of hilly and mountain region. This has created an imbalance in the recruitment process through the reservation system and still the people from *Terai* are underrepresented in various government services. Hence, size of the population of the ecological region could be one of the factors for distribution of reservation system.

It is believed that the provision of reservation must be reviewed and amended as needed.

Proper assessment and education are considered important in ensuring the effective implementation of reservation policies and raising awareness among the marginalized groups. It is believed that regular assessments by the government and concerned organizations should be conducted to inform necessary reforms in the reservation policy. Additionally, it is thought that providing training and enhancing the capabilities of candidates who are the beneficiaries of the reservation quota can have a positive impact on the effectiveness of the reservation system.

When asked about the ways to make reservation more effective in the future, one of the members of National Human Right Commission (NHRC) stated that:

*"It is believed that a real assessment of candidates prior to recruitment can ensure that the reservation system is serving its intended purpose and providing equal opportunities to the marginalized communities."*

The provision of reservation needs review and possible amendment. It's important to focus on educating and raising awareness among marginalized groups, as well as providing training to enhance their capabilities. The government should conduct proper assessments prior to reforming the policy, and the concerned organizations should focus on assessing the candidates prior to recruitment to ensure a positive impact.

## **Discussion**

Reservation or affirmative action has been regarded as one of the tools to increase the participation of underrepresented groups and communities in public services. However, this system needs proper handling as it may destroy the merit-based system in civil service and security organizations. Government of Nepal has been implementing the reservation policy during the recruitment process, representation in politics, and selection in education. Though, on average, it has been able to represent marginalized groups, it has not been able to implement the policy with precision in every recruitment process. However, the recruitment process might impact merit as well as many deserving categories might lose the opportunity to represent in the organization.

The reservation in the recruitment policy has also impacted the organization positively which has been seen through the analysis of historic data of the performance of APF personnel recruited through the reservation process. It shows the effectiveness of recruitment in the APF, Nepal. The APF, Nepal has implemented the reservation in the recruitment process which had a positive impact on the inclusiveness of the organization. Further, it has also helped in the positive image building of the organization and developing attraction of the new recruits toward the organization. It has created a system of harmonious representation in the security organization, however, there needs policy and system-related changes for the inclusive security forces.

It is almost a decade of introducing the reservation system in public sector recruitment in Nepal and hence, it is high time to evaluate the impact of the policy. However, the impacts created need to be assessed so as to direct this policy toward its goal. This newly introduced system has been able to give some positive impacts in terms of increasing representation of some marginalized communities but has created some

controversies and confusion as well. If the reservation is not categorized properly as a tool of inclusion, it may continue to be under the domination of a limited elite group even within the excluded groups.

## Conclusion

APF, Nepal has implemented a reservation policy in the recruitment which has boosted the inclusiveness of the force. The overall performance of the APF personnel recruited through the reservation and the view of APF personnel regarding the reservation policy shows a positive attitude towards the recruitment policy.

The analytical results presented in this study support the argument that reservations help members of historically depressed categories or groups to advance socially and transcend their historic positions in society, with some caveats.

While this analysis suggests that reservations are currently helping individuals transcend their hereditary station, it does not imply that reservations will always have this effect in longer period. The clear motive of implementation of the reservation system should be determined and the policy should be revised or updated based on its achievements.

The reservation system in Nepal needs modifications to adapt to changing circumstances. It is required to actively identify marginalized groups for inclusive development, regularly review the system with time-bound revisions, establish monitoring and evaluation processes, ensure transparency and fairness in selection criteria, and conduct further research. Implementing these recommendations will help Nepal achieve an equitable and efficient reservation system that addresses the needs of marginalized communities.

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**Evolving Security Landscape of Nepal-China Relations**

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**Abstract**

*Nepal-China relations have been cordial for centuries. The relationship is based on the principles of panchasheel, mutual trust and respect. China's overall policy and interests in Nepal revolve around stability, security, economic development and geopolitics. The changes in regime, either the Shah Monarchy or the Federal Democratic Republic Government, have never been the issue in the unremitting mutual relations between the two countries. However, in the republic era, the security landscape of the Nepal-China relationship has been evolved due to Nepal's geostrategic location and its vulnerability, China's growing military and economic power, the US's China containment strategy and use of soft power; and India's concerns about Chinese growing engagement in Nepal have raised various questions and security implications for Nepal-China relations. The researcher has used the qualitative approach to analyze the Nepal-China relation and security dynamics after 2007. It mainly used diplomatic, military and economic aspects of DIME instruments of national power as a framework of analysis. Nepal must comprehend the sensitivity of China and India, along with other regional and international powers, regarding their security concerns and implement prudent policies prioritizing national interests. Given the evolving dynamics of global power relations and advancements in regional and international arenas, Nepal's non-alignment policy must become more productive, ensuring constructive engagement with China, India and extra-regional powers.*

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## Introduction

Nepal and China have enjoyed a warm and enduring relationship since ancient time. This relationship is characterized by deep social, religious, cultural, economic, and political ties. The rare occasional disagreements have always been resolved in a peaceful and amicable manner, and the friendship between the two countries has remained intact throughout their histories. Nepal holds a significant place in China's priorities, and the principles of Panchsheel and the Treaty of Peace and Friendship of 1960 have guided their diplomatic relations since the establishment of diplomatic ties in 1955 (Subedi, 2005).

China always values Nepal to be strategically significant in its foreign and security policy objectives. Chinese involvement in Nepal follows a set of core principles, including respecting Nepal's sovereignty, adhering to a policy of non-interference in its domestic affairs, and pursuing economic engagement. China has been wary of external involvement in Nepal since the 1960s when Tibetan separatists staged protests from bases in Nepal (Acharya, 2019).

Nepal's strategic importance has been increasing in evolving security landscape due to its location between two powerful nations, China and India, which have differing ideologies and compete in military and economic areas. The evolving security landscape refers to the ongoing changes and transformations in the security environment that arise from the emergence of new security threats, challenges, and opportunities (McAfee, 2018). The evolving security landscape can be attributed to various factors such as geopolitical strategy, military, economic and social developments.

In the federal republic era, the relationship between Nepal and China is marked by the emergence of cross-cutting issues concerning the rivalry between global powers and the competition between established and emerging powers in the region. It shows that security concerns have become a top priority in the South Asia region, particularly among Nepal, China, and India. There are several complex issues that need to be examined, such as the emergence of regional security, the impact of China's growing military power, the possibility of an India-US-China balance of alignment, and the roles of India and China in bringing peace and stability to the region (Thapa, 2019). It is important for Nepal to focus on its immediate neighbors and ensure its survival as an independent nation by addressing its security interests. Given Nepal's strategic location, it is crucial to examine its relationship with China from a Nepali perspective and develop a renewed framework to strengthen their relationship in a way that benefits Nepal's national interests and preserves its independence in the federal republic era.

Nepal's unique and strategic position between two powerful nations with different ideologies and interests warrants a closer examination of its relations with them. The increasing presence of China in the region, combined with the strategic partnership between the US and India, has made South Asia a crucial player in global politics. China is apprehensive of the growing strategic alliance between India and the US and fears being encircled in South Asia. The US commitment to strengthening ties with South

Asian countries through Indo-Pacific Strategy to maintain a free and open Indo-Pacific have brought Nepal under the spotlight of geopolitical superpowers. Nepal's diplomatic efforts should focus on obtaining maximum benefits that safeguard its national interests while minimizing the risk of competition between China and India within its borders and extra regional powers (Shrestha, 2017). Nepal has traditionally sought to maintain a balanced relationship with other countries by employing various elements of national power, including diplomacy, military and economic cooperation.

This paper has focused on answering queries on how the evolving regional security landscape impact the relationship between China and Nepal in federal republic era and suggested some recommendations which could be noteworthy for Nepali foreign and security policy makers while constructing and formulating security strategy.

### **Review of the Literature**

The purpose of this literature review is to establish framework for the study of evolving security landscape of Nepal China relations which will guide the analysis and ultimately lead to the findings and conclusions. The literature review has been structured thematically to analyze pertinent issues related to subject matter.

The relationship between Nepal and China has been a significant area of interest among scholars, with many exploring the political, economic, and strategic developments in the bilateral relations. Jaiswal (2010) and Shrestha (2015) examine the historical developments in Nepal-China relations, focusing on the novelty of the bilateral relations that materialized in 1950 and significant events in Nepal-China relations during the monarchy era. To the contrary, Kumar (2013) and Maskey (2017) examine the potential threats and challenges that Nepal faces in its relationship with China. It has been discussed how the Nepal's strategic location makes it an important intermediary between two powerful regional nations, India and China, and the India-Nepal border has become increasingly important from a security perspective. Similarly, they emphasize the need for trilateral cooperation between India, Nepal, and China, with Nepal playing a crucial role in establishing strategic consensus between the three countries.

Over the last decade, China has expanded its interests and deepened its connections in South Asia, establishing diverse avenues of influence. As a result, it now anticipates heightened regard for its concerns and demonstrates a willingness to exert pressure in order to achieve its objectives. Emphasizing the Joseph Nye's soft power in diplomacy, Chakrabarti (2012) focused on China's soft power and foreign policy strategy in small South Asian countries, highlighting the balance between soft and hard power in the region. Giving emphasis to the emergence of non-traditional security threats in South Asia, Rizal (2012) highlighted the need for comprehensive security to address these challenges, while also analyzing the role of India, US, and China in the region. Besides that, Awasthy (2013) analyzed China-South Asia political relations from Nepal's viewpoint, highlighting the unequal inter-state relations that affect relationships between South Asian states and the impact of China's involvement in Nepal on India and Western powers. In general, these reviews provide insights into different aspects of South Asia and its geopolitical landscape.



It is also significant to examine the challenges faced by Nepal due to its geo-strategic location between China and India. Subedi (2010) argues that Nepal has traditionally followed a policy of neutrality and non-alignment in the conduct of its international relations, and contends that Nepal's foreign policy continues to be affected by its proximity to these powerful neighbors. Similarly, Nayak (2014) examines India-Nepal relations, highlighting the historical, cultural, economic, and geographical ties between the two countries. The author also discusses China's strategic engagement in Nepal and its formulation of a new global foreign policy. In addition, Acharya (2019) highlights the significance of dependability and uniformity in the foreign policy and diplomacy of smaller nations such as Nepal. The author raises doubts about Nepal's ability to possess the necessary strength, resilience, and assertiveness to withstand pressures from its neighboring countries. Basically, the literature reviews suggest that Nepal faces multi-faceted challenges to its national security and its foreign policy is strongly influenced by its geo-strategic location between China and India.

### **Research Methodology**

The research is conducted using a qualitative and analytical approach, and the secondary data were obtained from various sources such as books, journals, publications, magazines, articles, websites, reports, plans, and policies. In order to achieve precise literary analysis of the article's objectives, the writer employs the DME aspects of DIME (Diplomatic, Information, Military, and Economic) instruments of national power; as well as both realist and liberal theories as an analytical framework.

### **Findings and Analysis**

The researcher has shaped the findings of the Nepal-China relation in Federal republic era on evolving security landscape based on the diplomatic, military and economic aspect. This study has further analyzed the strategic and security interest of different regional and extra regional powers to generate ideas and discussion on emerging security dynamics of Nepal.

### **Nepal-China Relationship in Republic-Era**

The key contemporary challenges to global security ranges from conventional threats to human security including the arms trade, energy security and the future of security (Williams, 2008). In the present day, Nepal's concerns and interests align with those of the regional and global security landscape. Nepal has traditionally pursued a foreign policy that prioritizes maintaining balanced relationships with its neighbors. The primary goal of Nepal's domestic and foreign policy is to attain internal stability, peace, and economic development, pursue independent domestic and foreign policy, and take on an increasing role in regional and international relations (Acharya, 2019). Nevertheless, several security concerns have been identified as obstacles to achieving these foreign policy objectives.

Geographically, historically and culturally, Nepal and China are close neighbors and have a long history of friendly ties. The bilateral friendship and cooperation are growing exponentially since the establishment of diplomatic relations in 1955 (Bhattarai, 2010).

The historical trends and facts depict that Nepal-China relationship is consistent and progressive. China has typically prioritized maintaining ties with the government rather than with specific parties or leaders. In the meantime, the China relation with Nepali political parties has been intensely increased after Nepal became a federal republic in 2008. The continuous visits from high-level delegates of both countries since 2008 have elevated the Nepal-China relationship to new heights.

The dimensions of Nepal-China relations in federal republic era covers political, diplomatic, economic, trade, cultural, educational and other fields which have augmented the bilateral exchanges and cooperation. Undeniably, Nepal- China bilateral relations have developed as an exemplary of friendly cooperation for nations having different social systems as well as bordering nations living by close friendship and harmony. Looking at the historical trends of friendly Nepal-China relations, there are three salient features which have contributed to maintain strong impetus of development in federal republic era.

The first and foremost feature is mutual trust. Nepal-China consistently coexists in bilateral tranquility and continuously demonstrates mutual respect, trust, and solidarity towards one another. China follows the policy of non-interference in the domestic affairs of other nations. China has never interfered in the domestic affairs of Nepal and has always supported the political changes chosen by Nepali people.

The next characteristic is the principle of equal treatment. China and Chinese people resolutely follow the policy that a nation is equal with others; irrespective of big or small. With this spirit, China has built relations with Nepal on the basis of equality from the very beginning. China is resolute supporter of Nepal's sovereignty, independence and territorial integrity. Nepal and China enhance mutual cooperation and succeed in achieving benefits in mutual political relations, regional affairs and global forums.

The third feature is honesty. China always regards Nepal as its good neighbor and friend. China has rendered various support and cooperation to Nepal depending on her capacity and potentiality. Part of financial and technical support; China has accomplished above 30 projects in Nepal over the span of 20 years (Bhattarai, 2010). Nepali people have acknowledged and really thankful to government of China as such kind of projects have added prolific role in Nepal's social and economic growth.

### **Growing Trends of Nepal-China Engagement**

Mao Zedong developed a geopolitical strategy called "Five Finger Policy" which aimed to extend China's influence in its neighboring regions. The policy identified five strategic areas such as Nepal, Bhutan, Sikkim, Ladakh and Arunachal Pradesh (Singh, 2014). Moreover, Nepal shares a border of around 1,414 km with China, and it is widely believed that China is significantly influencing Nepali politics (Government of Nepal, 2023). China has various critical security and foreign policy goals in Nepal. The way in which China has engaged with Nepal can be alienated into four distinct phases.

Initially, China's involvement in Nepal originated from its concerns about Tibet. The primary goals of China are to safeguard its interests in Tibet, as the region relies on

neighboring countries for border trade. Additionally, China is highly aware of the annual influx of Tibetan refugees into Nepal and India, which it wants to prevent in order to avoid negative consequences and to maintain Nepal as a buffer zone. To achieve this, China aims to prevent Tibetan refugees from playing a destabilizing role in Nepal, thereby ensuring Nepal's security (Kumar, 2013).

Next, China has been increasingly asserting its influence in the South Asian region, and one of its recent initiatives is to reduce Nepal's reliance on trade and economic ties with India. China is cognizant of the historical and geographical ties between Nepal and India. In light of current trends, China seeks to establish new trade routes with Nepal and encourages Nepal to adopt an equidistant policy towards China and India. Additionally, China has been providing Nepal with grant aid for mutually agreeable development projects under its economic and technical cooperation programs since the mid-1990s.

Furthermore, China has placed greater emphasis on utilizing soft power aspects. This approach is exemplified by China's visible involvement in Nepal through VVIP visit, cultural and educational exchanges and Nepal's being a part of BRI. China recognizes that India has significant cultural sway in Nepal and is thus using soft power tactics to counterbalance and reduce India's influence (Lohani, 2017).

Lastly, the end of monarchy in Nepal in 2007 marked a significant turning point in the country's political landscape. Since then, China's involvement in Nepali politics has been growing steadily, it is seeking to expand its influence in the region through diplomatic, economic, and strategic means. China has also sought to strengthen its diplomatic ties with Nepal, with high-level visits and exchanges taking place between the two countries in recent years. In 2019, Chinese President Xi Jinping visited Nepal, marking the first visit by a Chinese head of state to the country in over two decades.

The Chinese President Xi Jinping visited Kathmandu on 12-13 October, 2019. A number of agreements were signed between Nepal and China on that occasion. Of the 20 agreements signed between Nepal and China during Xi's visit in Kathmandu, most of the agreements are related to Belt and Road Initiative (BRI), railway and roads connectivity between China and Nepal, and Nepal's reiteration to 'One China Policy' (Jha, 2019).

### **Regional and Extra Regional Security Dynamic**

South Asia has been characterized by cultural, physical, and linguistic interconnectedness. However, the potential harmony among the countries in the region has been compromised due to long-standing divisions and hostilities. The area is heavily militarized and has witnessed numerous conflicts in the past. It encompasses heavily populated countries like China, India, and Pakistan, all possessing substantial standing armies and nuclear capabilities (Awasthy, 2013). Notably, India is gradually emerging as a significant power, drawing attention from global players. In response to this changing dynamic, the United States has declared a rebalance strategy towards Asia, forging a strategic partnership with India through the Indo-Pacific strategy. This strategic shift has attracted

major global powers, including the United States, the European Union, Russia, and China, along with various regional and international institutions, all of which are increasingly engaged in South Asia.

South Asia region including China has geostrategic importance and also possess large human and natural resources. This region encompasses two of major developing economies; China and India and three nuclear powers; Pakistan, China and India. Furthermore, the interest and the engagement of Russia due to her proximity to central Asian states and close ally of China have brought great attention to South Asia. The US has always been engaged in the South Asian regional affairs due to its own regional interests and maintains hegemon. More significantly, US increased its engagement in the region mainly due to war on terror in Afghanistan after the post 9/11 period (Lohani, 2017). The continuous rise of China in economic and military power has also induced US to engage more in South Asian affairs.

Realists argue that nation-states are the key actors in global politics, and in the absence of a central governing authority, power serves as the primary medium of exchange among major world powers (Collins, 2016). The foreign policies of great powers generally focus on exerting significant influence on the international system to enhance their own power. Consequently, great powers are always seeking opportunities to expand their influence and Nepal's location in South Asia offers such opportunities for superpowers to assert their influence for their own gains. With the ascendance of China, Nepal's position has become even more strategically important.

## **Evolving Security Landscape and Its Impact on Nepal-China Relation**

### **Chinese Strategy and Security Interest**

South-Asian geographical location is strategically important from economical and security perspective to China's own influence and reduce the potentiality of other powers that might harm her interests. China plays a crucial and dynamic role in the socio-political and security aspects of the South-Asia region. Its importance stems from the fact that any instability or unrest in this area could significantly impact China's peaceful development, security, prosperity, and fundamental interests. This is particularly relevant as China is currently embarking on the ambitious 'New Era' with its grand vision of the BRI (Bhattarai, 2010).

China's South-Asia policy is mainly guided by security, economic, political stability and prosperity dimensions. It is not totally assertive but cautious and balance with respect to different countries. Nepal is important for China as it is an entry point for China into the South-Asian region. Her strategic interests also increased as Nepal being a gateway to agitated Tibetan region and host a considerable Tibetan exile community. So, Nepal and its stability are key priorities for China with reference to South-Asian security. China always wishes that Federal Nepal adhere on 'One China Policy' and seek greater cooperation as she was enjoying great cooperation during Monarchy.

China's increased economic and military involvement with Nepal has strengthened their diplomatic relations. This heightened engagement is evident through the increase in

bilateral diplomatic visits between the two countries, including visits by high-level delegations from line of ministries, the Nepali Army, Armed Police Force, Nepal and Nepal Police for consultations and training in China. In addition to diplomatic exchanges, China has invested in various sectors such as business, infrastructure, tourism, and water resources in Nepal. There are several areas of mutual cooperation between Nepal and China, including support for Nepal's security, cultural and people-to-people exchanges, political party cooperation, and joint efforts to address food insecurity, climate change, and global economic challenges (Kumar, 2013).

### **India's Strategy and Security Interest**

The growing engagement of China in South-Asian countries, particularly in Nepal, has become a source of increasing concern for India. China has made strides in Nepal by signing agreements for economic aid, exchange programs, trainings and promoting diplomatic relations. China's infrastructure projects in Nepal are part of a larger plan to expand its commercial and strategic influence in neighboring India (Jetly, 2010). India is worried that cross-border connections are contributing to terrorism and insurgency issues within its borders. The instability in Nepal and the proximity of China to Nepal have added to India's concerns. Drug trafficking and organized crime along the Nepal-India border is also posing a significant challenge to India's security (Chaturvedy & Malone, 2012). India is deeply concerned about the increasing involvement of China in Nepal which could lead to the emergence of anti-India actions along the Nepal-India border and in proximity to the India-China border.

India is striving to enhance its worldwide influence by utilizing both its hard and soft power as a regional force and an emerging global player. Its political, military, and economic capabilities are examples of its hard power, which is critical in the region and around the world. In addition, India recognizes the importance of its soft power, which includes public diplomacy, in promoting its interests, particularly in its neighboring countries like Nepal.

### **US's Strategy**

Nepal holds the United States in high esteem for its significant influence in shaping the country's perspective, despite being geographically distant and situated on the opposite side of the world. Nepal and the US established diplomatic relations on April 25, 1947, with Nepal becoming the second country after the UK to do so (Government of Nepal, 2023). Nepal has maintained a strong alliance with the United States, reaping advantages in terms of development, trade, investment, and tourism. Similarly, the US maintains a strategic engagement with Nepal, seeking its cooperation in global (especially in South Asia) political and military endeavors and regarding it as a pivotal factor in upholding stability within the region.

The US policy under President Donald Trump shifted towards the "Indo-Pacific Partnership" among the US, India, Japan, and Australia (Rizal, 2012). The reason behind this is connected to the changing approach of the United States towards China, leading to an intensified rivalry for global dominance between the two nations. As a result, the

strategic significance of South Asia has been raised. The present containment strategy of the United States is focused on China and primarily aimed at obstructing China's emergence as a significant economic and political influencer in global affairs. Despite recognizing the potential for a new Cold War, a particular segment of US policymakers persist in advocating for the legitimacy and indispensability of the containment strategy against China (Sangroula, 2018).

### **Security Interest of Western Blocs**

Nepal's geostrategic location has made it a potential area of interest for Western blocs. This is due to its strategic importance in implementing containment strategies against China and monitoring the growing trade relations between China and India. Nepal's significance has further increased with the sporadic conflicts between China and India. These factors have drawn the attention of the US and its allies, the EU, towards Nepal. However, a politically stable and economically independent Nepal may not align with the Western bloc's containment strategies against China and India (Sangroula, 2018). Therefore, the Western bloc is pursuing policies to keep Nepal under its absolute leverage to materialize its containment strategy to the desired extent. The implementation of the World Bank-sponsored structural adjustment program in 1992 led to Nepal's adoption of neoliberal policies, resulting in the auctioning of state-owned industries and corporations that severely impacted Nepal's economy and caused a political crisis (Bhattarai, 2017). The connection between the Western leverage on Nepal and the containment strategy against China and India is evident.

### **China - India Complex Relation**

China and India are two significant nations located in Asia, share border, home to a combined population of over two billion people. They have complex and multifaceted geopolitical issue that has been ongoing for decades. It is rooted in a long history of cultural and political differences between the two countries, as well as territorial disputes and economic competition. The China-India border dispute is a critical dispute as political elites of both countries consider inter relationship “far below their domestic perils with Taiwan and Pakistan” (Hamayoun, 2017).

The rivalry between India and China could be classified into three key areas. Firstly, there are border disputes in Doklam area (situated close to the tri-junction between India, Bhutan and China), which have been exemplified by the 73-day military standoff of both countries. Secondly, India has expressed concerns regarding the China-Pakistan Economic Corridor (CPEC) project and has declined participation in the Belt and Road Initiative (BRI). Thirdly, China's increasing presence and influence in the Indian Ocean has become a subject of contention between the two countries (Simkhada, 2018). In general, the rivalry between India and China is a multifaceted matter that is not expected to be settled in the near future. While both countries recognize the importance of maintaining diplomatic relations, they will continue to compete in economic and geopolitical terms, with the border dispute remaining a major source of tension between the two nations.

## **The MCC and BRI**

In 2004, the US Congress passed a law creating the MCC as a separate organization to provide foreign aid. Nepal became the first South Asian country to be eligible for the MCC and joined in September 2017. The US government committed to giving \$500 million in grants, while Nepal pledged \$130 million towards the initiative, which focuses on improving energy and transportation infrastructure (Ghimire, 2020). There are concerns that the MCC agreement could embroil Nepal in the competition between the US and China. Also, the US Indo-Pacific Strategy report explicitly identifies China as a revisionist power and a threat, while Nepal maintains amicable relations with China.

Nepal and China signed a Memorandum of Understanding (MoU) on BRI cooperation in 2017, which paved the way for Nepal's participation in the initiative. As part of this cooperation, China has pledged to invest in several infrastructure projects in Nepal, including road and rail networks, hydropower plants, and telecommunications infrastructure under the BRI. Despite the fanfare surrounding Nepal's participation in the BRI, progress on financing modalities and long-term viability have not been made for any of the projects. However, Nepal's involvement in BRI has also raised concerns about its debt sustainability, environmental impact, and potential geopolitical implications (Tuladhar, 2017).

Nepal had endorsed both the MCC and BRI agreements. If one argues that the Indo-Pacific is a US security strategy, then the same can be said of China's BRI. Despite the ongoing discussion about MCC and BRI, Nepal is connected to the US and China strategies in some way after end of Cold War. Nepal should refrain from engaging in such discussions, which have the potential to result in negative consequences (Sigdel, 2020).

## **Geopolitical Dynamics and Security Sensitivity of Nepal**

Nepal's concern for national security has been prominent since King Prithvi Narayan Shah's unification in 1769, mainly due to its geographical positioning between India and China (Maskey, 2017). Despite the independence of India and the establishment of China as a People's Republic, Nepal's perception of security threats has remained largely unchanged for the past eight decades. This perception is influenced by Nepal's location, size, and public psyche, as well as the India-China complex relation. Additionally, the political ambitions of these neighboring countries to exert regional influence have further complicated the situation.

While Nepal hasn't encountered direct external aggressions from its neighboring countries, its susceptibility has grown, putting its capacity to foster social, cultural, and economic progress in jeopardy. To ensure its long-term security, Nepal must be mindful of India and China's sensitivity towards security-related issues and adopt policies that strike a balance between respecting the interests of its neighbors while safeguarding its own sovereignty and independence. The changing security threat perception in Nepal is primarily attributed to its growing vulnerability and internal unrest rather than external factors.

## **Recommendations**

Nepal's foreign policy (in terms of security) is lacking in creativity and progressiveness, instead relying on traditional principles that have been in place for decades, such as those outlined in the UN Charter, Non-Aligned Movement and Panchasheel. It is necessary for Nepal to inject new energy and innovation into its foreign policy by adopting realistic and effective practices.

Nepal's top priorities in its relationships with other states are its self-preservation and autonomy. Therefore, its strategic alliances should be primarily focused on these goals. Both the US and China have proposed a range of initiatives aimed at improving cooperation with Nepal, such as MCC and the BRI. Nepal must carve out its own position within the region, taking into account the regional strategies of major powers and neighboring states.

Nepal should not align itself exclusively with either India or China, but instead utilize economic opportunities to achieve self-sufficiency. It is important for Nepal to be careful and avoid offending the strategic interests of both India and China while fulfilling its role as a mediator in the context of development.

Nepal's international security strategy comprises two components: maintaining a balance of power in the region and not aligning with any global powers. The definition of non-alignment in Nepal's foreign policy needs to be reviewed and revised. Nepal's foreign policy should also consider the current global trends, such as the growing opposition to globalization, the resurgence of geopolitics, and the changing power dynamics, particularly in developing countries like India and China.

Nepal should acknowledge that national security is a crucial aspect in all means. To achieve this, Nepal should establish a system for consultations between its defense establishments and those of neighboring countries and major powers, using smart power. Nepal should strive to strike a balance that respects the vital interests of both its neighbors while maximizing its own benefits.

## **Conclusion**

The longstanding relationship between Nepal and China has been characterized by cordial and deep-rooted connections across social, religious, cultural, economic, and political spheres. In 1955, diplomatic relations between the two countries were established on the basis of the principles of peaceful coexistence. Since, Nepal's transition to a Federal Democratic Republic in 2008, bilateral relations have seen increased interaction through high-level visits and other means of engagement to strengthening of relationship.

It is relatively clear that China's interest in Nepal is focused on three main areas: geopolitics, stability, and economic development. The primary interest of China is to ensure stability in Nepal, particularly to prevent any risk of Tibetan secession. In the federal republic era, China has been actively reaching out to political parties and various institutions in Nepal. Nepal and China have agreed to strengthen their defense and



security ties, but there are emerging issues that could impact the bilateral relationship. These issues include Nepal's geostrategic vulnerability, China's growing military and economic power, and India's concerns over China's engagement in Nepal, and the US and Western block's China containment strategy.

While examining Nepal's strategic and security interest, it clearly signaled out that Nepal's bilateral and trilateral relation with China and India is based on keeping national interest, national survival and independence at the top priority. While doing so, the precondition is garnering 'national unity', preserving 'national self-esteem, maintaining 'political stability' and advancement of 'common agenda'. It is essential to rise above everything on the issues of national interest and national security, irrespective of party politics and interest. Considering Nepal's strategic location and the increasing military power of China and India, it seems prudent for Nepal to adopt a policy of maintaining a regional strategic equilibrium and avoiding alignment with either country in its foreign relations.

The Non-alignment policy of Nepal has to be more constructive in the changing global power-relations dynamics and the developments in regional and global spheres because of the engagement of China, India and the US in the economic development of Nepal as well as their eagerness to uphold good relations. Therefore, Nepal should learn from her recent experiences, evaluate outcomes and define strategic and security interests, which would highly contribute in formulating her foreign and security policies. It should never be driven by strategic push and pull of regional and global factors. Nepal should also maintain strategic balancing between two neighbors and extra regional powers, prioritizing neighborhood first policy based on national interests.

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**Disaster Management by Security Agencies in Nepal**

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**Abstract**

*As per the MOHA report (2021), disaster has been claiming life and property of people. MOHA has its plan to tackle the Disaster because of the fact that Nepal is a disaster-prone country. The categories of disaster as per MOHA report, 25 types of disasters have been happening in Nepal and causing loss of life and property of people. In this context, this article aims to find out the situation of disasters in the country as whole and province-wise scenarios of disaster cases; examine the sufficiency of security personnel to implement the disaster policy mandate given by the government of Nepal and elucidate the required coordination for preparedness, responses and rescue operations that have to carry out by the security agencies in support of three tiers of governments. For this purpose, secondary data from the MOHA web pages were retrieved to analyze the interrelationship of each disaster. Likewise, policies related to preparedness and response in general, especially to security agencies were reviewed. Key informants (KI) interview was taken to consolidate findings from the secondary data. Koshi Province is in the top position of the disaster cases whereas Sudurpaschim Province is at the lowest position out of 26148 disaster cases from 2011 to 2021 June. Despite the deficiency of human resources in the security agencies and the lack of proper coordination made by the three tiers of government, security agencies accomplish the roles of preparedness, response and rescue operation more than their capacity to save life*

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*and property of people. The study concludes that disaster management is not the government's priority whatever its claim in government policy documents due to lack of appropriate coordination with the security agency and insufficient security personnel. The coordination and ensuring of required security personnel is the responsibility of the government when it concerns disaster management by the security agencies in Nepal.*

## **Background**

In Nepal, three security agencies-Nepali Army (NA) (96000), Armed Police Force, Nepal (37054) and Nepal Police (79554) have their own mandates and carried out their activities according to their mandates (Uprety, 2022). The NA protects the sovereignty of Nepal. The APF is mainly focused on border security and disaster management. The NP is the national and primarily law enforcement agency. Having different functions, these agencies are deployed in various cases of disaster emergencies. However, how human resources are prepared to respond the disasters is the curiosity of this article on the context of disasters that occur in the country each year. The aim of the article is to assess the volume of disasters and find out the shortage and surplus of human resources required to respond to disasters. Likewise, another objective of the article is to examine the coordination activities of security agencies with federal, provincial and local governments to respond collectively. Finally, there are suggestions derived from the findings of the research.

## **Policy Review for Disaster Reduction and Management**

The policy mandates are described in two parts. The first part is the general picture of disaster management in which all stakeholders have to accomplish their tasks. It means that the accumulation of each stakeholder role is the final result of risk reduction. This means that it provides the mandate to federal, provincial, local, non-governmental organizations, civil society, universities, schools, the private sector etc for risk mitigation caused by the disaster. The Government of Nepal (GoN) has developed legal and institutional arrangements to plan and manage disaster risk reduction and management activities. For example, Natural Calamities (Relief) Act, 1982 focuses on post-disaster response and relief and authorizes the government of Nepal to give appropriate orders to anyone undertaking relief work. Local Bodies Operation Act 2017; Building Act 1998; National Building Code 2004; National Strategy for Disaster Risk Management 2009, Climate Change Policy 2011, Land Use Policy 2012, Water Induced Disaster Management Policy 2015; National Reconstruction and Rehabilitation Policy 2015; National Disaster Response Framework 2013, Basic Guideline related to Settlement Development, Urban Planning and Building Construction 2016; National Urban Development Strategy 2016 are important legal and Policy framework. The new act i.e. the Disaster Risk Reduction and Management Act, 2017 provide a comprehensive outlook to capture the different dimension of disaster risk management- preparedness, rescue, response, rehabilitation and resettlements. The GoN developed agenda for action in the Disaster Risk Reduction National Strategic Plan of Action (DRRNPA 2018-2030) based on priorities set by the Sendai Framework for Disaster Risk Reduction

(SFDRR) (2015-2030) and implemented it accordingly to achieve sustainable goals (MOHA, 2022). However, the mid-term evaluation report highlights the lack of technical and skilled human resources in the provincial and local government to take disaster risk reduction responsibilities, the lack of informed decision-making culture, and low financial investment for risk reductions (MOHA, 2022). Besides, this report indicates a high risk of fire incidents (household, urban fire and forest fire) which are responsible for substantial loss of lives and properties in Nepal.

Likewise, while reviewing the second part of the policy review specific mandate of security agencies for disaster management, Disaster Risk Reduction and Management Act, 2017 invited security personnel as a member of the committees formed from the apex grassroots level of governance. National Strategy for Disaster Risk Management 2019 aims to achieve resilience in Nepal by providing guidance in prioritizing strategic interventions and stakeholder involvement. Evernthough these few laws state the broad picture of disaster risk management (UNDP, 2012 ; MOHA, 2018), these laws have not clearly stated the preparedness and response protocol in general and security agencies in particular when it is concerned to disaster risk management.

The security agencies of Nepal (NA, APF & NP) have their own specialized functions as per their acts. To carry out disaster response activities, the activities are grouped into four headings: a) training, resources, deployment and incentives b) disaster field information collection; c) rescue to the victim and d) respond to the victim.

These security agencies should develop security personnel through training. They train their personnel specialized in different disasters. For example, APF trained security personnel in the following headings- Medical First Responder (MFR), Collapsed Structure Search and Rescue (CSSR), Dead Body Management (DBM), Water Induced Disaster Rescue, Rappelling and Climbing, Fire Fighting Technique and Practical Emergency Logistic Training ([www.dmts.apf.gov.np](http://www.dmts.apf.gov.np) as of April 29, 2023). Also, security agencies arrange the logistic materials required for the emergency. Both security personnel and required materials should be in a ready position for disaster response. The law of land states explicitly that security agencies should deploy their troops for search, rescue and relief operations to save life and property of people (Article 51 and Article 267 (4) of the Constitution 2015 and APF Act, 2001).

They observe the field, assess the damages due to disasters and report to the concerned agency. Likewise, security agencies assist in the opening of affected roads and bridges due to disaster. Security agencies assist to establish emergency assistance camps and relief centres for the victims. Security agencies will provide security to the victims and others. They will provide first aid health services and bring victims up to hospitals. The NA has been actively participating in disaster management and leading some emergency operations. The constitution of Nepal 2015, has mandated NA to mobilize and respond to any disaster situation and has to coordinate with other security agencies to save life and property of people.

The APF is designed to combat domestic violence without mobilizing military personnel. The APF is mandated for disaster management and relief work. According to the APF

Act, 2001, its mandates include rendering assistance to the relief of natural calamities or epidemics that has occurred or likely to occur in any part of Nepal. The MoHA decided to entrust APF as a prime security agency in disaster management particularly in the response phase. For the purpose of achieving these task of disaster risk mitigation, APF collects disaster-related information and analyze the data, immediately identifies required resources, assigns the task to the emergency response force, and coordinate with other security agencies. Urgently, APF deploys its forces for search, rescue and relief operations in the field. APF provides assistance to build emergency shelters and camps including first aid to the needy victims. Finally, APF assesses damages due to disaster and informs the head office (Disaster Management Division, APF, 2023).

The NA plays a vital role to overcome natural and human-made disaster challenges in general specifically the 1990 earthquake in the eastern part of Nepal, the Koshi flood in 2008 and others. The NA has also played a major role in providing emergency assistance through peacekeeping operations in conflict-prone countries of the world(Nepali Army, 2021; in KC, 2022). The NP also plays a vital role in information collection, operation coordination, and supporting rescue, relief and rehabilitation work (UNDP, 2012, 18p).

On the background of such policy mandates of security agencies for disaster management in Nepal, Zaw and Lim (2017) argue that security agencies play a vital role in humanitarian assistance because of readiness, preparedness and team spirit. Dagur (2008) highlight the discourse on coordination between civil administration and security agencies. KC (2022) opines that well-prepared human resource in sufficient number and sound coordination mechanism always gives net positive results in the Nepalese context. However, it is a curiosity to know the situation of disasters in Nepal along with their impacts and their interrelations. Besides, it is also a pertinent issue to find out the sufficiency of security personnel and coordination with the government.

### **Methodology**

Secondary data were collected from MOHA- the main agency for disaster management while primary data were collected through in-depth interviews with retired security force commanders and experts. They were selected on the criteria of being commanders of disaster management during their service period in the security agency. Primarily 26148 disaster cases which happened from 2011 to 2021 June were collected from MOHA. These data were used to find out the trends of disasters in Nepal along with their impacts. Financial and non-financial loss/impact of the country were also calculated from the secondary data. Likewise, province-wise distribution patterns of disaster cases were also analyzed. Based on disaster types as illustrated in the secondary data, the correlation with each other was also traced out.

In the case of primary data, eight retired commanders and experts from security agencies as Key Informants (KI) were interviewed to examine the translation of security agencies' mandate for disaster management in Nepal. KIs who were the former commanders of the APF battalions involved in rescue operations during the disaster such as the earthquake in 2015, flooding and the COVID-19 pandemic were selected purposively. They were asked three questions- sufficiency of human resources in the security



agencies, coordination with the other stakeholders and the ways forward for effective response and rescue operations at the time of disasters. On the basis of both findings derived from the secondary data and primary data, the suggestions to mitigate the disaster risk in terms of preparedness and response were forwarded so that the security agency will have space to reform internally.

### The Situation of Disaster in Nepal

Nepal is at risk of different disasters due to natural hazards. On average, more than 500 various disastrous incidents occur resulting in the loss of physical infrastructures and human life and affecting livelihoods every year (MOHA, 2018). As per the records of the MOHA (2021) from 2011, there were more than 26,148 cases of disasters reported in police station. Still, unreported cases were prevailed in Nepal, but not included in this paper. The data showed that disaster cases were increasing trends in successive years. These disaster cases lost the life of people, missed people and affected families but also lost the economy. The types and scales of the disaster the loss of life and property. For example, an earthquake in 2015 lost more than 9 thousand people alone. However, there were about 500 people lost their lives each year in Nepal. There were also missed people each year due to disasters, mostly floods and landslides. The number of affected families also increased. In ten years period (2011-2021), 39 billion NPR was lost due to different types of disasters. Besides, there were a lot of injuries, public houses were fully or partially damaged of public houses and private houses, and lost cattle and their sheds etc (see Table 1). Such a loss is unbearable in a country like Nepal. The data revealed that as the number of disaster cases increased, the loss of life and property also increased. From 1971 to 2015, more than 40,000 people lost their life due to disasters. This number is more than two persons losing lives every day.

**Table 1**

*Loss of Life and Property Due to Disasters in Nepal*

Incident Date	Yearly Injuries	Yearly Gov. House Damaged	Yearly Gov. House Damaged Partially	Yearly Private House Fully Damaged	Yearly Pvt. Houses Partially Damaged	Yearly Cattle Loss	Yearly Displaced Shed
2011	408	0	0	1451	683	0	90
2012	472	0	0	4242	816	69	265
2013	531	0	0	2429	361	0	549
2014	490	0	0	10034	24687	0	756
2015	22661	2687	3776	773936	299378	1974	118
2016	764	2	3	3428	1222	8162	986
2017	737	0	1	1927	14427	3291	555
2018	2902	0	1	2505	1880	5164	643
2019	2452	0	0	4939	6873	9008	1260
2020	1175	8	5	1959	3330	0	771

2021	444	2	5	947	760	2	666
Total	33036	2699	3791	807797	354417	27670	6659

*Note.* Ministry of Home Affairs (MOHA) as of June 2021.

There were more than 75,000 people have been injured and about 3,000,000 have been affected (see Table 2) (MOHA, 2018).

**Table 2**

*Loss of Life and Property Due to Disasters From 2011 to 2021*

Year	Year-wise disaster cases	Yearly death	Yearly missing people	Yearly affected family	Yearly economic loss(NPR)
2011	1165	418	135	649	994,207,730.00
2012	1716	433	47	2859	1,291,895,997.00
2013	1688	472	185	2633	2,056,863,292.00
2014	1332	505	294	39812	16,815,037,717.00
2015	977	9304	212	828	944,589,530.00
2016	2370	486	47	13241	2,812,378,791.00
2017	2463	490	67	19073	2,496,785,394.00
2018	3919	478	9	8180	4,341,891,926.00
2019	4536	489	41	25263	4,705,960,265.00
2020	3769	559	102	11314	1,761,220,860.00
2021	2213	153	23	3019	1,287,158,896.00
<b>Total</b>	<b>26148</b>	<b>13787</b>	<b>1162</b>	<b>126871</b>	<b>39,507,990,398.00</b>

*Note.* Ministry of Home Affairs (MOHA) as of June 2021.

Research and investigation of disaster management are carried out globally and locally to find out the exact reasons and the explanatory factors responsible for disaster governance for the sake of framing appropriate disaster policy making. Various types of natural and man-made disasters were happened in Nepal due to its geographical location, unplanned infrastructure development and growing urbanization (MOHA, 2018). It revealed that, as the capacity of public institutions is strengthened, the vulnerability due to hazards of disaster will decrease. This is referred as the disaster risk. As the disaster risk is decreased, the life and property of the people will be saved. The preparedness, responses, reconstruction and rehabilitation cycle is followed for disaster management theoretically whereas the nature of these steps is context-dependent. Therefore, there is limited research on handling disaster cases administratively from a preparedness and response perspective in the context of Nepal. Thus, the article aims to find out the province-wise distribution of the disaster case in Nepal and the correlations of these disasters with each other.

### Province-Wise Distribution of Disaster Cases in Nepal

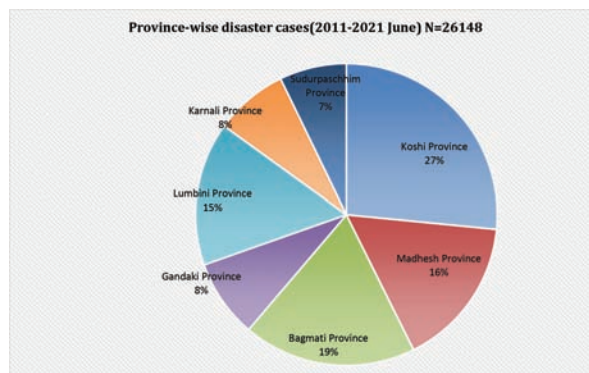
Nepal is a geographically and geologically unique country in the world. As the altitude varies, its landscape also varies. Consequently, the temperature and precipitation also vary throughout the country. In general, its northern part occupies by the Himalayan, its middle ranges are hilly regions and valleys while its southern part is covered by the Chure range and plain areas. About 83 percent of Nepal lies in the hill and Himalayan regions and 17 percent in the plain Terai(MOHA, 2018). The hilly region is at risk of landslide and soil erosion whereas Chure and the Terai are at risk of flood, droughts, fire and epidemics. The Himalayan region is at risk of avalanches and glacial lake outbursts. All of Nepal being in the very active seismic zone, and the hilly and Himalayan settlements are at high risk of the earthquake (MOHA, 2018).

Because of altitude, the temperature of the Himalayan region has a lower range temperature, middle range temperature in the hilly region and a bit higher temperature in the southern part of Nepal. The political division of Nepal does not exactly match the altitude, temperature and precipitation. Nepal is divided into seven provinces. The Koshi Province spreads the Himalayan range to Terai(Plain areas) whereas Madesh Province is found only in the Plain area. Likewise, most of the parts of Bagmati Province are in the Himalayan and Hilly regions and a few parts are in the Terai region. Likewise, Gandaki Province has the same type of topography as Bagmati Province. In the case of Lumbini Province, its most geographical areas are in Terai and few in the Hilly regions. Most areas of the Karnali region are in the Himalayan regions whereas a few parts are in the hilly regions and Terai regions. Sudurpachhim province has more or less similar areas in the Himalayan, hilly and Terai regions of Nepal.

Such geographical and topographical tenets of the provinces are major factors when the preparedness and responses for the sake of disaster management are concerned. Each province should consider these tenets while preparing for preparedness and response attempts. The frequency of the disaster cases determines the degree of preparedness and responses.

**Figure 1**

*Province-Wise Disaster Cases*

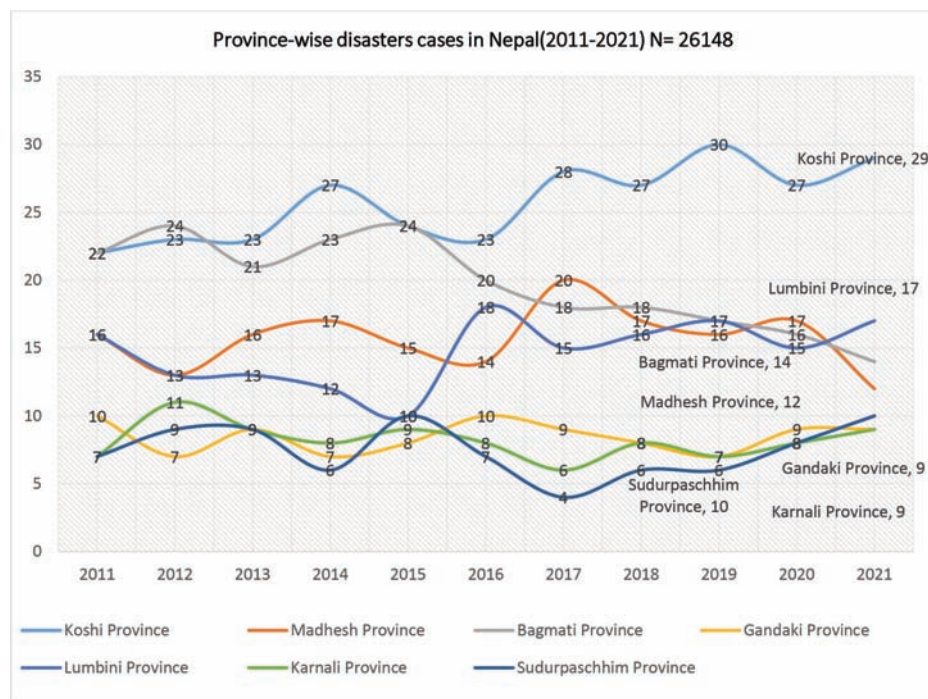


*Note.* Ministry of Home Affairs (MOHA) as of June 2021.

Figure 1 revealed that the maximum frequency of disaster cases out of more than 26 thousand cases, 27 percent of its share were found in Koshi Province. The second highest number of disaster cases i.e. 19 percent were found in the Bagmati province. Likewise, the third topper was Madhesh Province by 16 percent whereas the Lumbini Province by 15 percent. Gandaki Province, Karnali Province and Sudurpaschhim Province have disaster cases of about 7/8 percent in totality.

**Figure 2**

*Yearly Province-Wise Disaster*



*Note.* Ministry of Home Affairs (MOHA) as of June 2021.

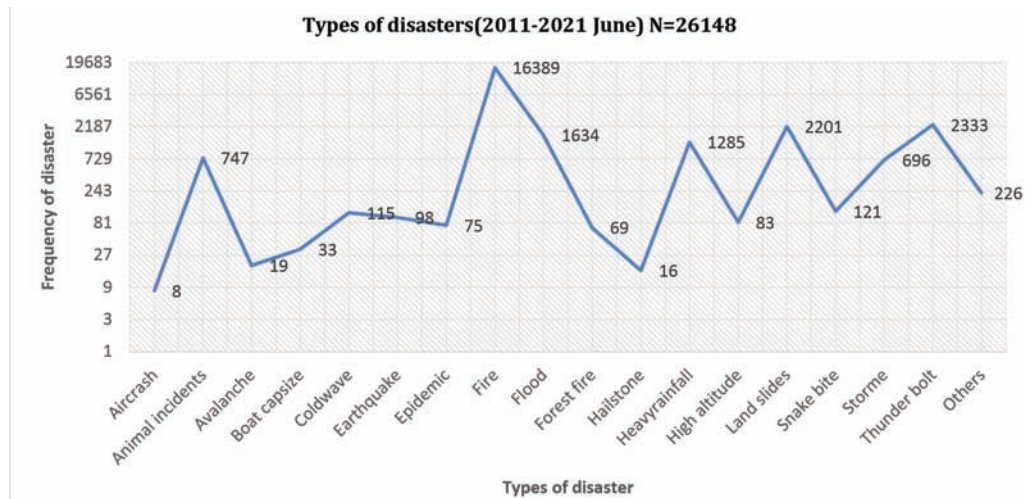
The number of cases determines the number of public offices, the number of human resources, the volume of logistic materials, the types of training institutions and others. This study reveals that most of the human resources in general and particularly public officials need to deploy in the Koshi Province, Madhesh Province, Bagmati Province and Lumbini Province. The high frequency of disaster cases in each province suggests the more demands of training institutions, more public plans and policies, strong architectural design structurally, safe housing and settlements etc. Governments-federal, provincial or local have to manage human resources and set institutional structures along with the plan and policies to save the life and property of the citizen.

While going through the analysis of types of disasters out of 26148 disaster cases in Nepal, fire (16389 cases) is the most prominent disaster case. The second type is thunderbolt (2333) and followed by landslides (2201). The fourth type of disaster is

flood (1634) and the fifth one is heavy rainfall (1285). In the majority of the districts of Nepal, disasters occur recurrently where more than 90 percent of the population are at high risk of death due to two or more than two types of disaster. These disasters were associated with each other and seasonal based too. Likewise, the earthquake is most fatal and frequently occurring in Nepal (For details see the following figure). This data suggest that the attention of the administrative division in general especially by the provincial government and local government along with federal public institutions should focus on the preparation of firefighter, landslide rescuers, flood rescuer, thunderbolt avoider housing settlement along with logistic, communication and other required materials when preparedness and response are concerned for the disaster management in Nepal. In the global comparison, Nepal has been ranked in 11th position as the risk-prone country in the world in terms of earthquakes and 30th position in terms of flood and landslide.

**Figure 3**

*Types of Disaster Cases*



*Note.* Ministry of Home Affairs (MOHA) as of June 2021.

The above-mentioned data are seasonally based. As per the reporting date of these disasters (26148) to MOHA, few of them seem seasonal-related among these disasters. These disasters are categorized in the following seasons: (a) Spring (March to May): Avalanche, fire, forest fire, hailstone, storm, thunderbolt, (b) Summer (June to August): Avalanches, fire, flood, heavy rainfall, landslide, snake bite, (c) Autumn (September to November), (d) Winter (December to February): Cold wave and (e) All seasons: Air crash, Boat capsized, Earthquake, high altitude.

Therefore, the public institutions and provincial/local government focus on the prepare human resources and required logistic material before the season and deploying the team when a disaster happens in the respective provincial and local governments. This data shows that the preparedness and response team should be ready to respond to the

disaster according to season. Otherwise, there might be heavy loss of life and property in the country in the absence of preparedness and response properly.

### **Inter-Relationships of the Disasters**

Recent occurrence of significant disasters (such as Hurricane Katrina, the Haiti earthquake, and the Fukushima Daiichi nuclear disaster) have both inspired and necessitated research to build a deeper understanding of how disasters can cause cascading effects, particularly on critical infrastructures. Given the importance and broad scope and relevance of the topic, a wide range of stakeholders (i.e., scientists, engineers, government agencies, intergovernmental organizations, etc.) have studied risk relationships and cascading effects over the years. An exhaustive capture of pertinent studies is neither possible nor necessary here. Yet, a review of some of the recent studies reveals interesting trends and observations on the state of current research (McGee. et al., 2015)

The data of MOHA (2011-2021 June) reveals that there is a significant relationship with each other of the disasters because of cascading effects. Aircrash, avalanches, animal incidents, fire, hailstone, heavy rainfall, landslides, snake bite, storm, thunderbolts, floods, high altitudes, etc have significant relationships with each other. Therefore, this data suggests that the preparation of human resources by the public institutions and provincial government as well as local government pay attention to these types too. The same human resource can respond to the disaster if training is properly given to them. This data lays the foundation for making syllabi of training courses when prepared by the public institutions and provincial/local government. The data also shows that earthquakes, forest fire avalanches, coldwave and epidemics have no relationship with other types of disasters that frequently happened in Nepal. It means that the training syllabus for these disasters needs to prepare differently customized to the reality of Nepal in case of preparedness and response. The training syllabus needs to include national scenarios of disaster cases, and relationships with other disasters and required capable security personnel to address the demand of the victim.

### **Sufficiency of Human Resources/Security Personnel**

In Nepali security agencies, there were 6.61% technically skilled human resources and 93.39% semi-skilled human resources for rescue and relief operations out of 212608 security personnel in totality. Categorically, the NA has 10.41% technically skilled persons of its total strength, 5.48 % in the APF and 2.55% in the NP. See the following table for details.

**Table 3**

*Skilled and Semi-Skilled Security Personnel in Nepal*

<b>Security Agency</b>	<b>Technically Skilled</b>	<b>Semiskilled</b>	<b>Total</b>
Nepal Army	10.41 %	89.59 %	96000
APF	5.48%	94.52%	37054

NP	2.55%	97.45%	79554
<b>Total</b>	<b>6.61%</b>	<b>93.39%</b>	<b>212608</b>
	<b>14065</b>	<b>198543</b>	<b>212608</b>

*Note.* Adopted from directorate of disaster management of Nepalese Army, APF, Nepal disaster management division, Nepal police disaster management division, (2022).

Whether these numbers of human resources available in the security agencies are surplus or shortage or sufficient to respond to the above-mentioned number of disasters each year is the main question. Retired security commanders argue that this number is not sufficient and is explicitly short to respond to the disaster. They univocally urged to prepare the required skilled and professional human resources in order to mitigate the disaster risk in Nepalese society.

One of the KI, a former commander argued that the preparedness of human resources faced challenges due to shortages of the appropriate trainer, training centre and appropriate syllabus during his period. He remembered that the existing syllabus was prepared as per the 1982 act, not as per the recently revised act of 2017. Likewise, there was a shortage of firefighters, fire extinguishers and a lack of oxygen gas including other logistic materials. Moreover, incentives to the security personnel were also lacking eventhough the response activities during disaster crisis was dangerous and life-threatening acts. He further argued that multiple strategies were required to prepare human resources by security agencies. He focused on the revision of the training syllabus for disasters considering the interrelationship of disasters, networking with security agencies, experience sharing etc. Exposure visits within the nation could also be carried out. The dry exercise is mandatory for the sake of preparedness of human resources who responded to disasters at the time of crisis.

Another former commander argued that the government must manage the disaster management battalion in each province because the number of large-scale or small-scale disasters was too high. Each battalion should have a disaster response platoon. He further emphasized that the noble purpose of security agencies is to save life and property of the people.

Likewise, another KI, a former commander of APF argues that it is hard to cope with disaster in Nepal due to the vulnerability created by multiple disasters at the same time. Eventhough many initiatives had been taken from the national and international levels to strengthen the capacity of Nepali people to cope with any kind of disaster, there was a shortage of required human resources either from security agencies or from the public side. To fulfil such deficiency, volunteers in the local government could be prepared and mobilized during the disaster crisis. APF could train them if the government provided the mandate to the APF. The APF itself had prepared the team for disaster management. On average, there were about APF 50 persons in each province despite of shortage of human resources. As per the APF plan, about 620 security personnel were required in each province to respond to the disaster. Therefore, the plan of APF itself showed that there was a huge deficiency of human resources in the security agencies. According to

him, 620 security personnel should be managed by the government.

Another KI, a disaster expert as well as the former commander shared his experience of the 2018 flood rescue operation. Despite of shortage of human resources in the provincial brigade, existing security personnel were standing by. Logistic materials such as a boat, tube, life jacket, rope, dry food etc were also managed by the APF. He admired the security personnel's contribution to saving life and property of the flood victims. Without having any basic resources, they rescued the flood victim even at the night. The APF and other security agency personnel were insufficient for rescue operations because the scale of the flood was too high. Based on his past flood rescue operation experience, he narrated that trained human resources were insufficient in the security agencies.

Besides, another KI, former security personnel argued that security agencies had specific roles in their respective areas including responding to disasters during the crisis. Disaster management required highly professional persons. Only two to three weeks-long training impartment to the security personnel was not sufficient. Therefore, a separate special force within the security agencies was required due to the high frequency of disaster cases and the unique nature of each disaster in Nepal. The unique nature of the disaster was due to geography, climate change and seismic conditions and unpredictable precipitation. Security agencies personnel had been doing their job more than their capacity.

In sum, former commanders argued that security agencies have been facing a shortage of human resources during the response and rescue operation. This argument is also confirmed in the report of the Mid-term review of the Sendai Framework for Disaster Risk Reduction (2015-2030)(MOHA, 2022) because of the high recurrent frequency of disasters in all seasons in Nepal. Auditor General reports (2022) highlighted that insufficiency of security personnel during the COVID-19 pandemic eventhough APF mobilized 22500 and NP deployed 45355 security personnel. A noteworthy point is that responding to a disaster is one of the responsibilities of security agencies among others. Because of the unique nature of the disaster, it demanded the highly specialized force in each province to respond immediately at the doorsteps of the people. Despite insufficient human resources, security agencies have been responding to disasters more than their capacity. Its example could be observed during the Earthquake in 1990, the Koshi flood in 2008, Earthquake in 2015 and COVID 19 crisis. The two to three-week training for the security personnel was not sufficient to respond to the disaster. Therefore, preparedness of human resources is the mandatory and proactive act of security agencies to fulfil insufficient skilled human resources by security agencies in consultation with the government.

### **Coordination Between Government Agencies**

The Disaster Risk Reduction and Management (DRRM) Act, 2017 came into action replacing the response and relief-centric law, the Natural Calamity Relief Act 1982 (MOHA, 2019). The new act provides a comprehensive outlook to capture different dimensions of disaster risk management. As per MOHA, the DRRM Act is more progressive in encouraging a proactive approach to reducing and managing disasters by



introducing the ‘whole of society approach’ in disaster risk management and ensuring ownership and accountability. It not only aspires to have a more proactive response during the disaster but also insists upon continuity in risk reduction, response, recovery and rehabilitation. To translate these provisions of the act, coordination between inter public institutions such as security agencies and three tiers of government is the prominent task during the preparedness and responding phase of disaster management (MOHA, 2019).

KI, a former commander argued that the coordination mechanism could be strengthened effectively. He opined that coordination was very easy to say but very hard in reality. Therefore, these must be easy and specific coordination protocols from the federal government to local government in association with security agencies. For example, the APF force was not included in the coordination committee at the local level.

Likewise, KI, a former commander argued that there were many committees at the central, provincial and local levels. However, these local committees were facing trouble to operate response and rescue operations due to a lack of transfer of authority from the central level. The provincial internal affairs and law ministry needed to have more roles so that it could strengthen local-level governments and organizations. Besides, locally formed disaster management committees could coordinate with the schools and other local organizations to produce volunteers. Security personnel would train them. Governments should have incentive plans to give incentives if they were mobilised during the response and rescue operations of disasters.

Another KI, a former commander argued that security agencies lack resources among various public institutions. These public institutions should be coordinated through financial resources, human resources, physical resources and information sharing. As a result, synergetic effectiveness would be produced if there is effective coordination established inter public institutions.

He further argued that coordination should be established and linked with each other up to the ward level of local level governments. At the ward level also, there must be enough stock of logistic materials such as food for disaster-affected people, volunteers, tents, public buildings etc. because local level governments could provide financial resources to manage such essentials during a disaster crisis. Information on food storage, the number of trained volunteers, tents and public buildings should be shared with the security agencies for the sake of effective coordination.

However, the other KII argued that the coordination mechanism is not criticism free despite of coordination mechanism at the central, provincial and district levels. The committee meeting used to held after the disaster, not for their preparedness. These coordination meetings should be held prior to seasonal-based disasters. Their decisions paved the path to take decisions by the respective security agency to manage and orient their human resources.

## **Conclusion**

The above discussion shows that Nepal is a highly disaster-prone country. The data

from 2011 to 2021 June revealed that there were more than 26148 disaster cases throughout the country including 1379 death cases each year. The data from 2011 to 2021 revealed one disaster and two death case ratios in Nepal. Looking province-wise distribution of disasters, Koshi Province stood at the first position, Bagmati Province at 2nd position, Madhes Province in 3rd Position and Lumbini Province at 4th position of disaster cases happened in Nepal. Likewise, Gandaki Province, Karnali Province and Sudurpaschhim Provinces were in 5th, 6th and 7th position in the disaster cases respectively. Fire, thunderbolts, landslides, heavy rainfall, and floods were the five top-most occurring disasters in Nepal. However, heavy rainfall, flood, thunderbolt, hailstone, avalanches etc have a significant relationship with each other. It means one disaster causes another to have happened. In the case of risk disaster management, the preparedness, response and rescue operation concerns, there are ambiguities legally eventhough security agencies are assigned roles of preparedness, response and rescue operations in case of disaster including their other regular roles and responsibilities without providing adequate financial resource and specific legal mandate.

KI informants, former commanders and disaster experts argue that security agencies have been accomplishing the task of preparedness, response and rescue operation for disaster risk management more than their capacity despite human resource deficiency and lack of appropriate coordination mechanisms with the three tiers of governments in Nepal. Despite many policy provisions focusing on three tiers of government including other stakeholders, security agencies have given due attention to respond the disaster crisis at the critical phase of the disaster. The insufficiency of security personnel and lack of appropriate coordination with security agencies reveal that governments don't pay top priority to disaster risk management eventhough governments have given the ceremonial commitment and promises for disaster risk management in front of the citizen.

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**Climate Change, Climatic Hazards and National Security of Nepal**

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**Abstract**

*This article examines the impact of climate change on the national security of Nepal by studying secondary data from the Ministry of Home Affairs. The data covers the last five years and focuses on five climate hazards: flood, landslide, windstorm, forest fire, and avalanches. Through an analysis of the human and economic costs and the frequency of occurrence, the study identifies windstorms as an emerging threat to national security. The research highlights that climatic hazards are affecting Nepal's security, and the study particularly investigates their impacts in the past year. The human and economic costs caused by these climatic hazards were assessed based on factors such as: deaths, injuries, missing persons, affected families, destroyed houses, displaced sheds, and estimated monetary losses. The study indicates a fluctuation in the frequency and impacts of some climatic hazards due to climate change, with 2076 BS being the most destructive year. Traditional threats such as floods and landslides persist, while windstorms are increasingly becoming stronger. Additionally, the incidents of forest fires have risen in the last two years. Among the five hazards, avalanches seem to be the least destructive in terms of human and economic costs. The findings underscore the importance of addressing climate change to safeguard Nepal's national security.*

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## Introduction

Climate change has been one of the major issues of contemporary world. Nepal is affected by climate change with shifted of species' ranges to higher altitudes, melting of the glaciers and increment in the frequency of precipitation and other issues. Experts have estimated that by 2030. As a result of climate change the number of people affected by river flooding can be increased by double (IDMC & NRC, 2023).

Climate change is defined as a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods (UNFCCC, 1992).

Different factors are considered responsible for climate change. Hotter temperature, more severe storms, increased drought, a warming, rising ocean, losses of species, not enough food, more health risks and poverty and displacement are some of the effects of climate change (United Nations).

Climate hazards are major phenomenon of climate change. Climate hazard is understood as the climate-related physical events or trends or physical impacts that may cause loss of life, injury or health impacts as well as damage and loss of property, infrastructure, livelihoods, service, provision, ecosystems and environmental resources. These include: warming, precipitation, floods, drought, heat waves, fires, sea level, storms, changes in natural land cover, and ocean chemistry (Bhatti et al., 2023). Due to the climate change climate hazards are affecting human and their livelihoods. In New York City there is increment in destruction of lives and economy by climate hazards caused by climate change (Depietri & McPhearson, 2018). According to a study Nepal is also facing multiple climatic hazards due to the climate change. These climate hazards are directly affecting the human lives in Nepal. One of the examples is disaster displacement. During 2012-2021 the number of displaced people in Nepal was 3.4 million. In 2022 alone displacement of new 32000 people took place due to the disaster in Nepal. Climate change and low level of human development has increased the risk of disaster displacement in Nepal (Cazabat, 2022).

With the expansion of the scope of national security climate change has been associated with national security. Traditionally national security was understood as protection of state from external threats. It was more state centric and external threat focused. But after the cold war, the concept of national security has been sifted to people centric and focused on internal threats. It stresses more on people's security through human development that is through the food, employment and environmental security (Waisová, 2003). The overarching matrices of security are fast changing in present world. Human security advocates that non-traditional security parameters actually determine the state of human and then national security (Lama, 2018).

Climate change is considered as threat to the nation from state as well as human threat prospective. From state security prospective it involves to manage climate-related threats to safeguard their sovereignty, military strength, and power in the international

system and from human security prospective it includes a variety of concerns ranging from the economy, the environment, the community, to health, the body and personal safety (Arnall, 2023).

Nepal is a mountainous country in South Asia. Due to its topography it is vulnerable to natural hazards. About 83 percent of its land is mountainous and hilly and remaining 17 percent of the land is plain. Disaster triggered extreme climate events like flood, landslide, avalanche have been increased by climate change in Nepal. That is threatening the human life and livelihood (Dhungana et al., 2013).

In Nepal, Climate change has been felt other areas i.e. temperature rise, precipitation, floods etc. From 1971 to 2005 average temperature of Nepal had increased by  $0.05^{\circ}\text{C}$ /year. Similarly the precipitation is increasing annually by 13 mm. The flood days in certain rivers of Nepal have increased. Similarly, the heavy rainfall events are increased during monsoon (Devkota, 2014).

The rising temperature has resulted the melting of glaciers and increment of the frequency of precipitation with heavy floods. It is projected that in 21st century the natural hazards like drought, heat wave, river flooding, and glacial lake outburst flooding will intensify the human life risk in Nepal (WB & ADB, 2021). That means national security will be threatened via human security.

The Himalaya mountain located on the northern part of Nepal is directly associated with the livelihood of the people of this region. In one hand it works as the water tower of this region which provides continuous water to the major rivers of this region, and in another hand it assists for rain fall during monsoon season. Monsoon is the agricultural season of South and South-East Asia. Nepal has about two third of the Himalaya range which is also affected by climate change. While addressing the United Nations Framework Convention on Climate Change (UNFCCC) held in Poland in December 2018, Nepal's then president had informed that Himalayan glaciers are melting; snow-capped mountains are becoming dark and dull which is causing the high possibility of glacial lake outbursts and it has adverse effect in river- basin system of Nepal (Bhattarai & Karki, 2020). The effects of climate change in Himalayan region is so strong that Mount Everest's glaciers have lost 2000 years of ice in just 30 years. Due to the variable of weather this year 17 deaths occurred in Mount Everest (Petersen, 2023).

Forest fire in another affected areas from climate change. Human activities and other factors are responsible for the forest fire but scientists have observed the changes in "fire weather" i.e. when the chances of fire is high (Doer et al., 2022). Nepal is also affected by the forest fire. Despite its low industrial carbon emission Nepal's forest fire is remarkably contributing in it (Khadka, 2021). This is causing the environment pollution which is accelerating the climate change with the result of climatic hazards. In this way climatic vicious cycle is developing.

Another effect of climate change is the strong storms. There had been long debate about the effects of climate change on strong storms. In 2018 a study from NASA concluded that there is relation between extreme storms and temperature rise. According to that

study, temperature rise has increased the occurrence of strong storms in certain part of the earth (Buis, 2020). Nepal is also the victim of wind storm. Every year Nepal faces large number of wind storm in different parts of the country. In addition to that the effect of climate change can be felt in diseases also. Malaria and dengue have moved to the higher altitudes of Nepal (Karki et al., 2009) that is directly affecting the wellbeing of people in Nepal; that is how it is related with the human security prospective as well.

The constitution of Nepal has included the attainment of all round human security, social good-will, tolerance and cohesion and reduction of risks of natural disaster as the directive principles and policies of the state (Law commission, 2015). National Security Policy of Nepal has also identified the climate change and natural disaster as threat for ecological equilibrium. It has mentioned protection of environment and climate as the matter of paramount national interest. In addition to that, it has recognized climate change and environment loss as national security threat and challenge to national security (MoD, 2016).

This article has the two objectives. The first objective is to identify the trend of five climate hazards i.e. flood, landslide, windstorm, forest fire and avalanche in Nepal covering the period of 2075 BS to 2079 BS. Second objective of this article is to have comparative study of the human and economic costs of those climate hazards from 2075 BS to 2079 BS.

### **Review of the Literature**

Malla (2023) explained climate change as the national security issue and it has to be addressed accordingly but Nepal has failed to do so. To justify his opinion, the author has listed the wide spread effects of climate change in Nepal. He has covered the areas of national defense, economy, development, environment, sociocultural aspects, politics and diplomatic and foreign relations. Unlike other Nepali writers, he has related climate change and national security with the security of infrastructures of Nepali army and interference in military tactics and technology. He has explained about the cross border spillover of disasters caused by climate change and that can threaten the national security of Nepal i.e. glacier lake outburst in Tibet and construction of flood protection structure by India in Indo-Nepal border. Though he has covered wider areas affected by climate change but his work is mainly focused on effects flood. He has briefly covered about the trend of forest fire but it seems that other major climate hazards of Nepal like windstorm, avalanche, and landslide are overlooked (Malla, 2023).

US department of Defense (2021) states in its report that climate hazard threaten national security both directly and indirectly. According to the report climate hazard can cause the scarcity of resources, which may result instability in local and regional level. That threatens the US national security. Another potential threat to national security is identified as disaster migration which invites competition for the resources resulting conflict. As US is the global power such developments threaten its national interests. Though this report does not specify about a particular climate hazard but it talks about strategic implications of climate hazards in national security (Department of Defense, 2021).

Ministry of Forests and Environment (2021) in its report mentioned that effects of climate change have been increased in Nepal through the climate hazards and destruction done by them. This report has analyzed the data from 1971 to 2019. This report covered different 14 climate hazards and their economic and human cost. According to this report, some of the districts in terai region are vulnerable from flood and forest fire. Some of the districts from both terai and hilly regions are vulnerable to wind storm and though the incidents of avalanches are increasing but they are not significant. In this report, hazard-wise comparison of deaths affected population and economic losses among the five hazards of (flood, fire, landslide, windstorm and avalanches) revealed that landslides and floods are the top most. Fire causes the most economic losses (56.6 percent) followed by floods (31 percent) and landslides (3.7 percent). This report has studied the 49 years data which provides best opportunity to study the trends of the climate hazards. Similarly, study of 14 different climate hazards of all the districts of Nepal has made it easy to have a comparative study of different districts of Nepal (MoFE, 2021).

Ministry of Home Affairs (2022) informs, from 2015 to 2021 there were 22,250 incidents of different climate hazards. In this period these hazards took 12,315 lives, injured, 32,464 people affected 84,483 families and had the estimated economic loss of NRs 163,409,909. This data does not provide separately the frequency of incident, economic and human cost of individual climate hazard. This makes difficult to compare among these climate hazards (Ministry of Home Affairs, 2022).

International Federation of Red Cross and Red Crescent Societies (2021) in its report state that there has been climatic variation as a result of climate change in Nepal. According to the report there is fluctuation of rain fall timing of rain fall in different parts of Nepal. In addition to that the report informs that due to the heavy rain, the chances of landslides have increased in Nepal. This report is focused on rainfall, landslide and their relation. According to this report, due to the climate change some parts of Nepal are facing drought and temperature rise. This is directly affecting the health of the local population. Though this report is limited within four climate hazards it has analyzed the relation between climate change and public health. Public health is directly related with the human security of the nation which is ultimately the national security issue (IFRC, 2021).

Among the reviewed literatures first two have clearly accepted climate change as the national security threat. They have mentioned about the climate hazards which can threaten the national security. Rest of the literatures have described about different climate hazard and their trend in different time frame in Nepal. These literatures lack the comparative study of major climate hazards of Nepal within the time frame of last five years. This time frame is significant because new government within the framework of new constitution of Nepal that advocated the betterment of people, this timeframe is significant.

### **Methodology**

This study adopted descriptive quantitative approach. Five years secondary data from



the public domain was analyzed from 2075 BS to 2079 BS about the five climatic hazards (i.e. flood, landslide, forest fire, wind storm and avalanche). The data were collected from Disaster Risk Reduction online Portal of Ministry of Home Affairs, Government of Nepal. This is the only source of data for this study. Five years longitudinal data were analyzed to study the relation between the independent variables i.e. climatic hazards and dependent variables i.e. human and economic costs. Higher in number of dead, injured, missing and affected family is considered the higher the human cost. In the same way higher the higher the number of destroyed houses, displaced sheds and estimated costs in terms of NRS is considered the higher economic cost. Higher the human or economic or both cost higher the negative effect in human security.

## Discussion

### Distribution of Climatic Hazard Incidents

Among different types of climatic hazards, this article has studied five major climatic hazards. They are flood, wind storm, forest fire, landslide and avalanche. From 2075 to 2079 BS, among these five climatic hazards landslide had taken place 1929 times which is the highest one respectively followed by wind storm 621 times, flood 597 times, forest fire 284 times and avalanche 13 times. In 2077 BS landslide had highest record of 489 times and the lowest 328 times in 2079 BS. Similarly, avalanche had the highest record of 4 times in 2075 BS and 2078 BS. In 2077 BS there was not any record of avalanche. The highest number of floods was recorded 204 in 2076 BS and the lowest number was in 2079 which was 59. 2075 BS witnessed the highest numbers of wind storm i.e. 226 and lowest number was recorded 59 in 2078 BS. There were not any incidents of forest fire in 2075 BS and 2077 BS. But 2079 BS witnessed the highest number of forest fire i.e. 190. Table 1 shows detail description of the climatic hazards in last five years.

**Table 1**

*Five Years Distribution of Climatic Hazard Incidents*

Year	Flood	Wind Storm	Forest Fire	Landslide	Avalanche
2075	82	226	0	334	4
2076	204	149	2	434	2
2077	97	80	0	489	0
2078	155	59	92	344	4
2079	59	107	190	328	3
<b>Total</b>	<b>597</b>	<b>621</b>	<b>284</b>	<b>1929</b>	<b>13</b>

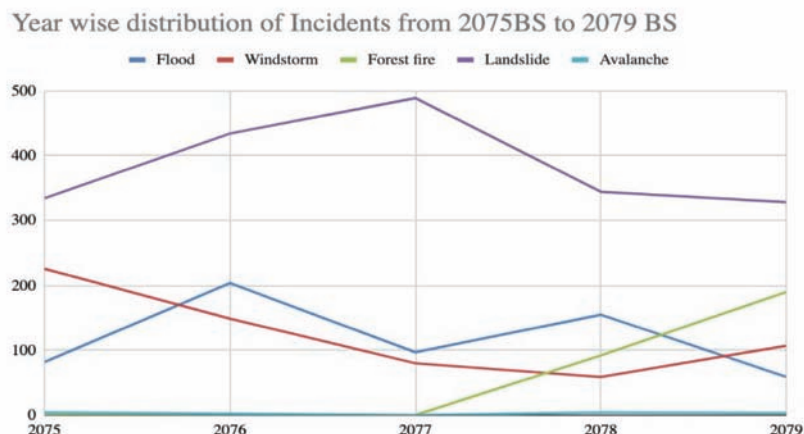
*Note.* Adopted from Nepal disaster risk reduction portal of MoHA (2023).

Figure 1 shows the trend of the climatic hazards. The figure shows that forest fire has ascending trend whereas avalanche has linear trend. Rest of the others has fluctuation in their trend. Windstorm has fluctuation in its trend but according to last two years, the incidents of windstorm in increasing where as in the same period the incidents of

landslide are decreasing.

**Figure 1**

*Distribution of Incidents*



*Note.* Adopted from Nepal disaster risk reduction portal of MoHA (2023).

### Human and Economic Cost by Flood

In last five years total 214 people were dead by flood. Among them the largest number i.e. 73 were dead in 2076 BS and the lowest i.e. 17 people were dead in 2075 BS. In the same period 88 people were injured by the flood. In 2075 the highest number people i.e. 27 injured by the flood and the lowest number of injured was 11 in 2077 BS. Total 116 people were missed by flood in last five years. In 2077 BS 37 people were missed which was the highest number and the lowest number of missing people was 3 in 2075 BS. The flood had affected 5100 families in last five years. In 2076 BS the highest number of family were affected by flood which was 3073 and lowest number of affected family was 155 in 2079 BS.

From economic prospective total 3860 houses were destroyed by the flood in last five years. In 2076 the highest number of houses was destroyed by the flood which was 2359. The lowest number of houses was destroyed by the flood was 71 in 2079 BS. In the same period total 160 sheds were displaced by the flood. Among them the largest number was 76 in 2076 BS and the lowest number was 6 in 2075 BS. Below Table 2 shows the human and economic losses caused by flood in last five years in detail.

**Table 2**

*Five Year Distribution of Incidents by Floods*

Year	Dead	Injured	Missing	Affected Family	Houses Destroyed	Displaced Shed
2075	17	27	3	1080	560	6
2076	73	19	27	3073	2359	76
2077	42	11	37	512	214	25

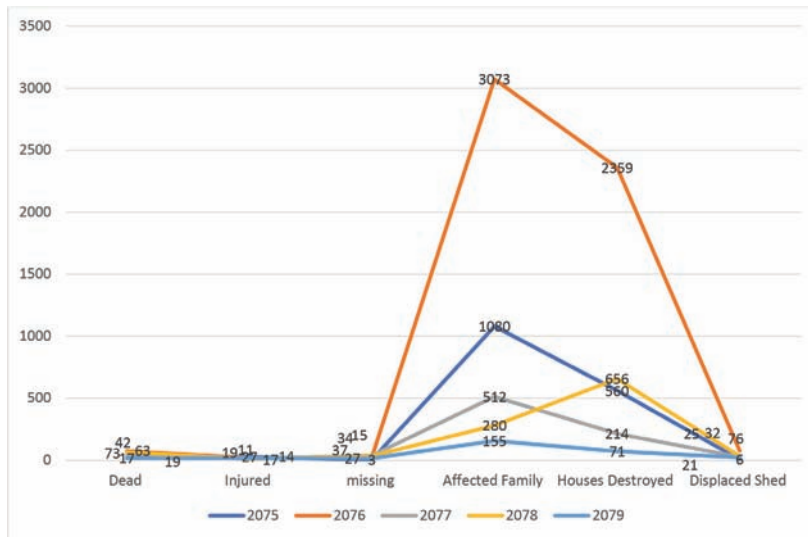
2078	63	14	34	280	656	32
2079	19	17	15	155	71	21
<b>Total</b>	<b>214</b>	<b>88</b>	<b>116</b>	<b>5100</b>	<b>3860</b>	<b>160</b>

Note. Adopted from Nepal disaster risk reduction portal of MoHA (2023).

Figure 2 describes the general trend of human and economic loss caused by the flood in last five years. It shows that the number of dead caused by flood is in fluctuation. So it does not have any specific trend. But comparatively the numbers of injured and missing seem linear and more stable. The number of affected family by flood is decreasing every year. The number of houses destroyed by flood is fluctuated. And number of displaced shed seems comparatively stable but increase from 2076 BS.

**Figure 2**

*Incidents Caused by flood in last five years*



Note. Adopted from Nepal disaster risk reduction portal of MoHA (2023).

**Human and Economic Cost by Wind Storm**

In last five years total 75 people were dead by wind storm. Among them the largest number i.e. 45 were dead in 2075 BS and the lowest i.e. 3 people were dead in 2078 BS. In the same period 1411 people were injured by the wind storm. In 2075 the highest number people i.e. 1199 injured by the wind storm and the lowest number of injured was 10 in 2078 BS. During last five years only one person was missed by wind storm in 2078 BS. The wind storm had affected 15815 families in last five years. In 2076 BS 10723 families were affected by the wind storm which was the highest in the last five years and lowest number of affected family was 271 in 2079 BS.

From economic prospective total 6048 houses were destroyed by the wind storm in last five years in Nepal. In 2076 the highest number of houses was destroyed by the wind

storm which was 4167. The lowest number of houses was destroyed by the wind storm was 233 in 2079 BS. In the same period total 194 sheds were displaced by the wind storm. Among them the largest number was 110 in 2076 BS and the lowest number was 12 in 2077 BS. Below Table 3 shows the human and economic losses caused by wind storm in last five years in detail.

**Table 3**

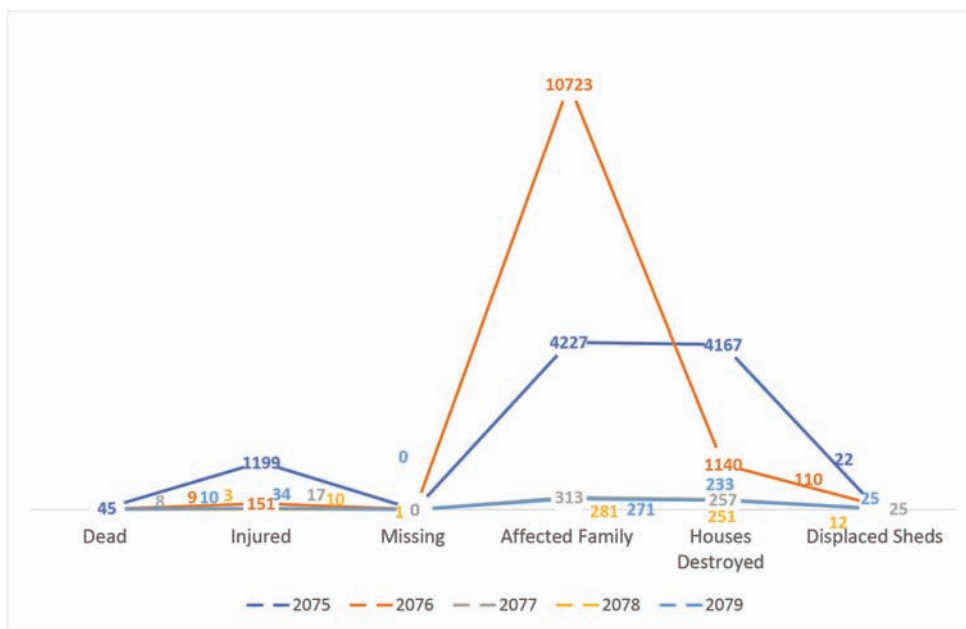
*Five Year Distribution of Incidents Wind Storm*

Year	Dead	Injured	Missing	Affected Family	Houses Destroyed	Displaced Shed
2075	45	1199	0	4227	4167	22
2076	9	151	0	10723	1140	110
2077	8	17	0	313	257	25
2078	3	10	1	281	251	12
2079	10	34	0	271	233	25
<b>Total</b>	<b>75</b>	<b>1411</b>	<b>1</b>	<b>15815</b>	<b>6048</b>	<b>194</b>

*Note.* Adopted from Nepal disaster risk reduction portal of MoHA (2023).

Figure 3 describes the general trend of human and economic loss caused by the wind storm in last five years. It shows that the number of dead caused by wind storm had decreased after 2075 BS but it is linear. The number of injured people by wind storm is fluctuated. There is only one case of missing by wind storm in last five years. Number of affected family, houses destroyed and displaces sheds is fluctuated.

**Figure 3**



*Incidents Caused by Wind Storms in Last five years*

*Note.* Adopted from Nepal disaster risk reduction portal of MoHA (2023).

### **Human and Economic Cost by Forest Fire**

In last five years total 4 people were dead by forest fire. Among them the largest number i.e. 3 were dead in 2078 BS and there were no deaths from forest fire in 2075, 2076 and 2077 BS. In the same period 5 people were injured by forest fire. The highest number person injured by forest fire was 3 in 2079 BS. There were not any injury cases caused by forest fire in 2075, 2076 and 2077 BS. During last five years there were not any cases of missing caused by forest fire. The forest fire had affected 78 families in last five years. In both 2078 and 2079 BS the highest 38 families were affected by forest fire and no families were affected by forest fire in 2075 and 2077 BS.

From economic prospective total 53 houses were destroyed by the wind storm in last five years in Nepal. The forest fire did not cause destruction to any houses in 2075, 2076 and 2077 BS. In 2078 forest fire had destroyed 29 houses which was the highest number in last five years. In the same period total 13 sheds were displaced by the forest fire. Among them the largest number was 11 in 2079 BS. There were not any cases of displacement of sheds caused by forest fire in 2075, 2076 and 2077 BS. Below Table 4 shows the human and economic losses caused by wind storm in last five years in detail.

**Table 4**

*Five Year Distribution of Incidents Forest Fire*

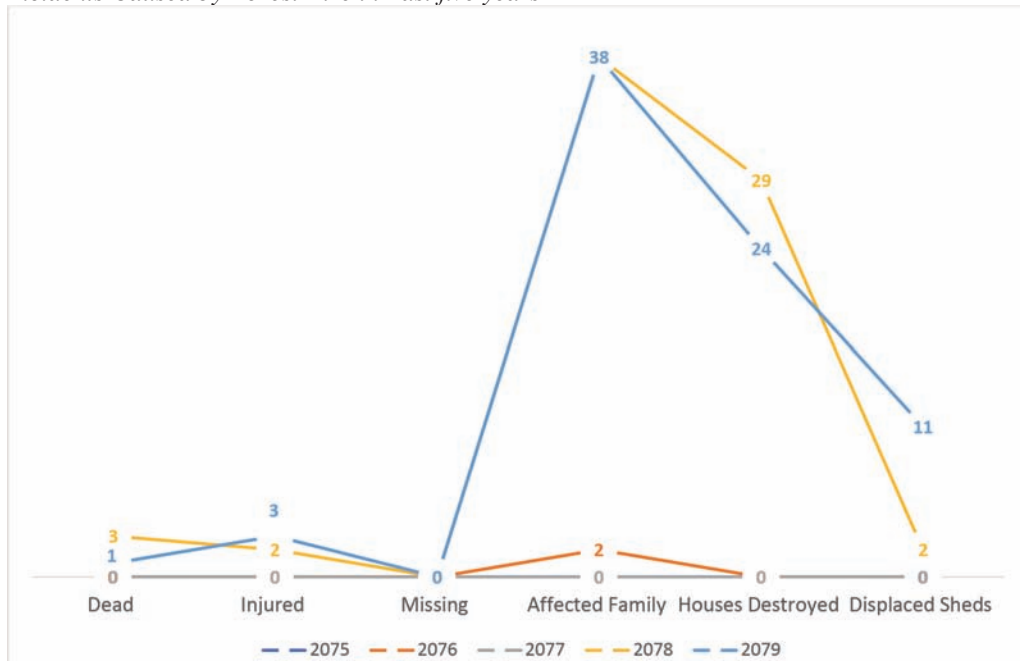
<b>Year</b>	<b>Dead</b>	<b>Injured</b>	<b>Missing</b>	<b>Affected Family</b>	<b>Houses Destroyed</b>	<b>Displaced Shed</b>
2075	0	0	0	0	0	0
2076	0	0	0	2	0	0
2077	0	0	0	0	0	0
2078	3	2	0	38	29	2
2079	1	3	0	38	24	11
<b>Total</b>	<b>4</b>	<b>5</b>	<b>0</b>	<b>78</b>	<b>53</b>	<b>13</b>

*Note.* Adopted from Nepal disaster risk reduction portal of MoHA (2023).

Figure 4 describes the general trend of human and economic loss caused by forest fire in last five years. It shows that the number of dead caused by forest fire has decreased and in linear pattern. Though the number of injured caused by forest fire in increased but it is also in linear pattern. There are not any cases of missing by forest fire in last five years. The number of affected family seems fluctuation in its pattern but has increased in last two years in linear pattern. Similarly, the number of houses destroyed by forest fire is decreasing but in linear pattern. The number of displaced sheds seems increasing.

**Figure 4**

*Incidents Caused by Forest Fire in Last five years*



*Note.* Adopted from Nepal disaster risk reduction portal of MoHA (2023).

**Human and Economic Cost by Landslide**

In last five years total 750 people were dead by Landslide. Among them 301 were dead in 2077 BS which was the largest number of dead caused by landslide in last five years. In the same period the lowest number of dead by landslide was 83 people in 2076 BS. Total 671 people were injured by landslide in last five years. The highest number of injured people was 226 in 2077 and the lowest number of injured people by landslide was 81 in 2076 BS. In last five years there 127 people got missed by landslide in Nepal. Only 2 people got missing in 2075 which was the lowest number and 64 people got missed in 2077 which was the largest number of people to get missing by landslide in last five years. The landslide had affected 7166 families in last five years. The largest numbers of families' i.e 1987 were affected by landslide in 2079 BS and the smallest number of affected family was 615 in 2078 BS.

From economic prospective total 5737 houses were destroyed by landslide in last five years in Nepal. In 2076 BS, 2717 i.e. houses the largest numbers of houses were destroyed by landslide whereas the previous year the smallest number of houses i.e. 302 houses were destroyed by landslide in 2075 BS. During this period total 933 sheds were displaced by landslides. The largest numbers of sheds i.e. 659 were displaced by landslide in 2076 BS and the lowest number of displaced shed was 48 in 2075 BS. Table 5 shows the human and economic losses caused by wind storm in last five years in detail.

**Table 5**

*Five Year Distribution of Incidents Landslide*

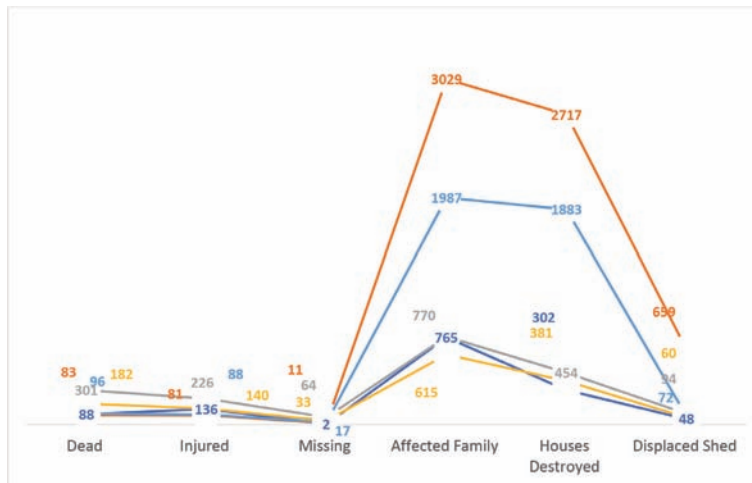
Year	Dead	Injured	Missing	Affected Family	Houses Destroyed	Displaced Shed
2075	88	136	2	765	302	48
2076	83	81	11	3029	2717	659
2077	301	226	64	770	454	94
2078	182	140	33	615	381	60
2079	96	88	17	1987	1883	72
<b>Total</b>	<b>750</b>	<b>671</b>	<b>127</b>	<b>7166</b>	<b>5737</b>	<b>933</b>

*Note.* Adopted from Nepal disaster risk reduction portal of MoHA (2023).

Figure 5 describes the general trend of human and economic loss caused by landslide in last five years. It shows that the number of dead caused by landslide is fluctuated. But it is decreasing. Situation is same in case of injured missing persons, displaced shed also. The number of affected family and houses destroyed by landslide seems fluctuated.

**Figure 5**

*Incidents Caused by Landslide in Last five years*



*Note.* Adopted from Nepal disaster risk reduction portal of MoHA (2023).

**Human and Economic Cost by Avalanche**

In last five years total 12 people were dead by avalanche. Among them 8 was the highest number of dead in 2075 BS. There were no deaths caused by avalanche in 2076 and 2077 BS. During same period 23 people were injured by avalanche in Nepal. The highest numbers of people i.e. 11 were injured by avalanche in 2078 and 2079 BS. But there were not any injury caused by avalanche in 2075 and 2077 BS. In last five years 4 people were missed by avalanche in Nepal. Among them 3 were missed in 2079 BS. But there were not any cases of missing by avalanche in 2075, 2077 and 2078 BS. Total

40 families were affected by the avalanche in last five years. Among them the largest number of families i.e. 16 was affected in 2079 BS and no family was affected by avalanche in 2077 BS

From economic prospective in last five year only one house was destroyed and another only shed was displaced by the avalanche in 2078 BS. Table 6 shows the human and economic losses caused by avalanche in last five years in detail.

**Table 6**

*Five Year Distribution of Incidents Avalanche*

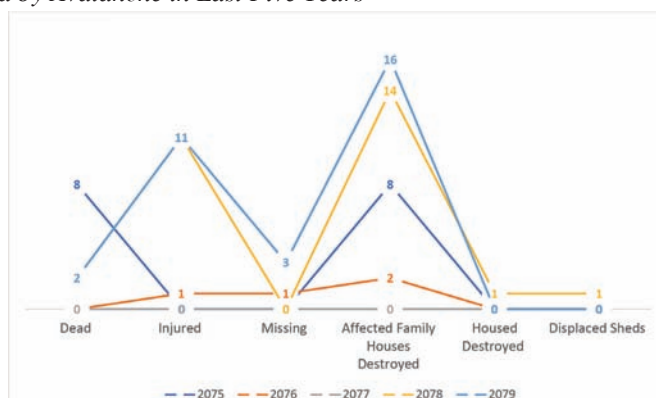
Year	Dead	Injured	Missing	Affected Family	Houses Destroyed	Displaced Shed
2075	8	0	0	8	0	0
2076	0	1	1	2	0	0
2077	0	0	0	0	0	0
2078	2	11	0	14	1	1
2079	2	11	3	16	0	0
<b>Total</b>	<b>12</b>	<b>23</b>	<b>4</b>	<b>40</b>	<b>1</b>	<b>1</b>

*Note.* Adopted from Nepal disaster risk reduction portal of MoHA (2023).

Figure 6 describes the general trend of human and economic loss caused by avalanche in last five years. It shows that the number of dead caused by landslide is fluctuated but it is in linear pattern. Similarly numbers of injured, number of missing, number of affected family are fluctuated but it is increasing. Numbers of houses destroyed and displaced sheds are fluctuated in last five years.

**Figure 6**

*Incidents Caused by Avalanche in Last Five Years*



*Note.* Adopted from Nepal disaster risk reduction portal of MoHA (2023).

### Estimated Monetary Cost by Climatic Hazards

Among the five climatic hazards flood had the highest cost of damage in last five years which is estimated NRs 1,28,62,16,649, it is followed by landslide NRs 70,90,33,600,



Wind Storm NRs 32,69,45,498, Forest Fire NRs 1,78,86,200 avalanche zero. The highest damage caused by flood was in 2076 BS it was NRs 1,06,34,95,249 and the lowest damage was NRs 3, 45, 30,900. Similarly in total damage of NRs 32,69,45,498 caused by wind storm the highest was NRs 16,56,06,800 in 2079 BS and the lowest was NRs 1,35,56,500. The total damage caused by forest fire was NRs 70, 90, 33,600 in last five years. There were not any monitory damage in 2075 and 2077 BS. The highest damage was NRs 1,37,00,000 in 2079. Landslide had the total damage of NRs 70, 90, 33,600 in last five years. The highest damage was NRs 40,14,86,00 in 2076 BS and the lowest damage was NRs 3, 46, 35,000 in 2078 BS. Avalanche did not have any monitory damage in last five years. Table 7 shows the estimated loss in NRs caused by climatic hazards in last five years.

**Table 7**

*Estimated Loss by Climatic Hazard Incidents in Five Year (in NRs)*

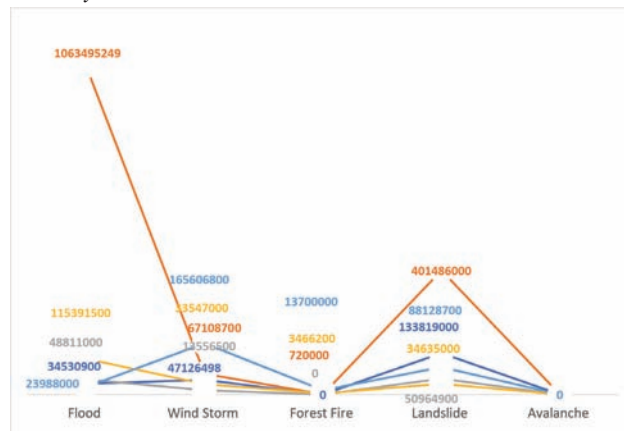
Year	Flood	Wind Storm	Forest Fire	Landslide	Avalanche
2075	3,45,30,900	4,71,26,498	0	13,38,19,000	0
2076	1,06,34,95,249	6,71,08,700	7,20,000	40,14,86,000	0
2077	4,88,11,000	1,35,56,500	0	5,09,64,900	0
2078	11,53,91,500	3,35,47,000	34,66,200	3,46,35,000	0
2079	2,39,88,000	16,56,06,800	1,37,00,000	8,81,28,700	0
<b>Total</b>	<b>1,28,62,16,649</b>	<b>32,69,45,498</b>	<b>1,78,86,200</b>	<b>70,90,33,600</b>	<b>0</b>

*Note.* Adopted from Nepal disaster risk reduction portal of MoHA (2023).

Figure 7 shows trend of the monitory loss caused by five climatic hazards in last five years. In this figure we can see except avalanche that the monitory damage caused by climatic hazards is fluctuated.

**Figure 7**

*Monitory Costs Caused by Climatic Hazards in Last Five Years*



*Note.* Adopted from Nepal disaster risk reduction portal of MoHA (2023).

## Comparison of Incidents and Losses

In last five years landslide had occurred the highest numbers times in Nepal and avalanche had occurred the lowest numbers of times. Among the 1055 dead landslide had killed the highest number of people i.e. 750 and forest fire had killed 4 people which was the lowest number. Among the 2198 injured wind storm had injured the highest number of people i.e 1411 and forest fire had injured 5 people which was the lowest number of injured. Total 248 people had been missing in this period among them the highest number of missing i.e 127 was caused by landslide and forest fire didn't cause any missing. Among 28,199 affected families the highest number of families i.e. 15815 were affected by wind storm and the lowest 40 families were affected by avalanche. In total 1301 sheds were displaced in this period. Avalanche had displaced only one shed and landslide had displaced 933 sheds as the highest numbers of displaced shed. It is estimated that climatic hazards cost NRs 2,340,081,947 during this period. Among them the avalanche did not have any monetary loss whereas flood had the highest cost of NRs 1,28,62,16,649. Table 8 shows the comparison between incidents and losses.

**Table 8**

*Comparison of Incident and Loss*

Climatic Hazards	Incidents							
	Frequency	Dead	Injured	Missing	Affected Family	House Destroyed	Displaced Sheds	Estimated Monetary Cost (In NRs)
Flood	597	214	88	116	5100	3860	160	1,28,62,16,649
Wind Storm	621	75	1411	1	15815	6048	194	32,69,45,498
Forest Fire	284	4	5	0	78	53	13	1,78,86,200
Landslide	1929	750	671	127	7166	5737	933	70,90,33,600
Avalanche	13	12	23	4	40	1	1	0
<b>Total</b>	<b>3,444</b>	<b>1,055</b>	<b>2,198</b>	<b>248</b>	<b>28,199</b>	<b>15,699</b>	<b>1,301</b>	<b>2,340,081,947</b>

*Note.* MoHA (<http://www.drrportal.gov.np/reports>).

From the discussion we have seen that climatic hazards are affecting both human and economic sectors of Nepal every year. In this way they have direct effects in human security of Nepal. It appears that there may not any relation between the number of incidents and intensity of damage caused by it. It seems that it may not have relation between flood and landslides in Nepal. From human and economic point of view 2076 BS had the most destructive year. The major contributors for this destruction were flood, windstorm and landslide.

In terms of dead injury and missing person landslide is the most fatal climatic hazard of Nepal which is respectively followed by windstorm, flood, avalanche and forest fire. If the number of affected family is also included then windstorm is the most fatal climatic hazard followed by landslide, flood forest fire and avalanche. In fact the incidents of windstorm are fluctuated than of flood and landslide. The incidents of 2076 BS brought the windstorm on the top otherwise the in comparatively Landslide and flood are most

occurring as well as most damaging climatic hazards of Nepal.

In case of economic loss without land slide had destroyed the largest number of houses and displaced the sheds which is respectively followed by windstorm, flood, forest fire and avalanche. In case of monetary loss flood cost the highest respectively followed by landslide, windstorm, forest fire and avalanche

From both the human and economic cost the degree of threat is higher from landslide which is respectively followed by windstorm, flood, forest fire and avalanche.

The frequency of landslide seems stable in comparison to other climatic hazards. Other of other climatic hazards is fluctuated. Similarly, the cases of forest fire have increased significantly in last two years. These can be the effects of climate change.

Among the five climatic hazards, comparatively the destruction caused by landslide is stable than the others. There is fluctuation in the level of destruction caused by avalanche and forest fire.

Landslide and flood had been our traditional climatic hazards threatening life and property every year. But wind storm can compete with them. Similarly, considering the last two years data if not addressed in an effective way forest fire can another big challenge in few years.

## **Conclusion**

The incidents caused by the climatic hazards have threatened the human security of Nepal that ultimately affects the national security of Nepal. The effects of climate change can be observed in Nepal with the fluctuation and increase in the incidents as well as impacts of climatic hazards. Large numbers of lives and properties are affected by climatic hazards every year. Some climatic hazards have been stronger in terms of both frequency and effects. They are posing new threats to human security of Nepal. The linear effect of some of the climatic hazards shows that in these five years sufficient measures are not taken to address these threats. Considering these facts it is suggested that Nepal has to take adequate action to address landslide and flood. Special attention should be given to wind storm. Forest fire has to be addressed on time not to prevent it from becoming a major threat as landslide and flood. Avalanche incidents have to be monitored.

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**Human Resource Development Oriented Performance Appraisal System  
in Armed Police Force, Nepal**

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**Abstract**

*Human Resource Management (HRM) involves managing and developing the workforce, while Human Resource Development (HRD) optimizes performance, fosters growth, and aligns HR practices with employee needs. Performance Appraisal (PA) is vital for HRD, identifying strengths, development areas, fostering growth, and optimizing organizational performance. The research employed a descriptive design with a sequential explanatory method, gathering quantitative data from 74 and qualitative data from 25 respondents out of 1741 officers in the Armed Police Force, Nepal (APF). Both descriptive and inferential statistics were used to examine the quantitative data as well as thematic analysis was executed for the qualitative analysis to study the performance appraisal system in the APF focusing on its alignment with HRD principles. The study reveals that the APF has an HRD climate and is oriented towards HRD principles in its performance appraisal system. However, significant improvements are needed to enhance the system's effectiveness and fairness. The study further highlights the importance of the monitoring on performance appraisal process and linking performance appraisal results with other HRD mechanisms for a comprehensive HRD-oriented PA system. The research suggests implementing training for appraisers, improving performance review frequency, and incorporating potential appraisal, adopting a more systematic and objective evaluation system to foster a*

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*fair and growth-oriented appraisal environment. These findings have significant applications for enhancing the PA system and promoting HRD within the organization since the study emphasized the importance of a strong monitoring system, regular feedback, and potential appraisal to foster an HRD-oriented appraisal process, ultimately promoting employee growth and organizational development.*

## **Introduction**

In any organization, a cohesive group of individuals and resources work towards a shared purpose (Anderson, 2019). To achieve this purpose, organizations rely on their human, capital, and technological resources. Efficient functioning is typically achieved through the implementation of processes, hierarchies, and division of responsibilities (Herbel & Rocchigiani, 2013). Among these resources, human capital plays a fundamental role and serves as a measure of an organization's competency and standards (Tripathi, 2001). Acknowledging this, human resource management (HRM) emphasizes the importance of employees as valuable assets and aims to align HR practices with their needs and aspirations to achieve organizational goals (Adhikari, 2010).

In response to the changing competitive landscape, the recognition of the socio-psychological value of employees, and the evolving concept of human resources, the notion of human resource development (HRD) has emerged as an extension of HRM. HRD is rooted in the philosophy that by providing a favorable environment for individuals to express their unlimited potential, organizations can harness their capabilities to achieve their objectives (Rao, 1991). HRD focuses on optimizing the performance of individuals, committees, and groups, ultimately striving to create an enabling organization (Panigrahy, 1989).

Various mechanisms contribute to the HRD framework, as outlined by Rao (1991), including performance appraisal, potential appraisal and development, feedback and performance coaching, career planning, training, organization development, rewards, employee welfare, quality of work life, and human resource information. Among these mechanisms, performance appraisal holds significant importance as it serves as a prerequisite for other HRD aspects such as career planning, potential appraisal, training planning, and organizational development (Alhalboosi, 2018; Bena & Priya, 2014; Creswell, 2009; Dessler & Varkkry, 2009; Rao, 2006).

The current study delves into the performance appraisal system of the APF, exploring its functioning and how it is interlinked with other HRD mechanisms. Additionally, the study seeks to assess the HRD climate within the APF. The key research questions driving this study are as follows: a) How does the performance appraisal system of the APF function, and b) to what extent does it align with the principles of HRD?

Through a comprehensive examination of the performance appraisal system within APF, this study aims to shed light on its effectiveness and integration with broader HRD principles, thereby contributing valuable insights into optimizing organizational performance and employee development.

The objective of this study are: to analyze the existing performance appraisal system of

APF and to explore the alignment between the current performance appraisal system in APF and the principles of HRD.

### **Review of the Literature and Hypothesis Development**

Performance appraisal is built upon the core philosophy of enhancing efficiency and performance improvement (Whitford & Coetsee, 2006). It involves measuring the efficiency and effectiveness of actions, a concept dating back to philosophers like Bacon and Hobbes, who associated it with causality and desired effects (Jain, 2014). The appraisal process is deeply rooted in organizational and individual behavior, with techniques categorized into past-oriented and future-oriented approaches (Aggarwal & Thakur, 2013; Hossain, 2015). Methods such as essay appraisal, graphic rating scale, and management by objectives contribute to this process (Cintrón & Flaniken, 2017; Dessler & Varkkry, 2009; Faizal, 2005).

Performance appraisal is an integral part of human resource management (HRM) and strategically evaluates an individual's achievements within a specific timeframe (Clark, 2015). HRM emphasizes efficient control, while the philosophies of HRD stress on the development and freedom for proactive individuals (Hossain, 2015). HRD philosophy centers on unlocking the unlimited potential of individuals through systematic efforts (Panigrahi, 1989) and values human beings beyond their contributions to corporate productivity (Silvera, 1990). With societal changes, HRD's importance has grown in organizations (Jeung et al., 2011).

The western definition of HRD, proposed by Swanson (1995), emphasizes developing human expertise to enhance performance through organization development and personnel training. HRD's purpose is to improve individual performance, organizational effectiveness, and productivity (Tabibi (2011, as cited in Alhalboosi, 2018) leading to increased efficiency, competitive advantages, and a more responsive workforce.

Performance appraisal and HRD are based on maximizing efficiency, human potential, and individual development to achieve organizational objectives effectively. These principles contribute to continuous performance improvement and the overall well-being of the workforce.

Rao (1991) defines HRD as a continuous process aimed at acquiring and sharpening capabilities required for present and future job functions, developing individual potential, and fostering a congenial organizational climate. To achieve these objectives, HRD measures are essential, ensuring continuous acquisition and utilization of employee capabilities. The mechanisms or subsystems of HRD, as outlined by Rao (1991), include performance and potential appraisal, feedback and performance coaching, career planning, training, organization development, rewards, employee welfare, quality of work life, and human resource information. These HRD sub system/mechanisms should lead to processes like role clarity, performance planning, and development climate, resulting in competent, satisfied, and committed employees contributing to organizational growth (Bhattarai, 2013).



**Table 1**

*Contribution of HRD Subsystems to Development Dimensions*

Development Dimensions		HRD Subsystems	
Individual	Training	Career planning	Potential appraisal and development
	Feedback and Coaching Performance	Rewards	
Individual in the present role	Performance appraisal	Training	Feedback and performance coaching
		Rewards	
Individual in regard to likely future roles	Potential appraisal and development	Training	PA Feedback and performance coaching
Dyadic relationships	Feedback and performance coaching	Performance appraisal	Training
Teams and teamwork	Organization development	Training	Team rewards
Collaboration among different units/teams	Organization and development	Training	
Self-renewing capability and health of organization	Performance appraisal	Organization development	Training

*Note.* Adopted from the book reading into HRD, Rao (1991). The table describes how the HRD subsystems are interrelated with development dimension.

**Table 2**

*Links Between the Subsystems of HRD*

	Performance appraisal	Potential appraisal and development	Feedback and performance coaching	Training	Career planning	Employee Welfare and quality of work life	Rewards	OD and systems development	Human resources information
Performance Appraisal (PA)	-	PA dimensions develop the potential of employees for higher level jobs	PA data are the basis for feedback and counseling	PA indicates the job training needs of each individual	PA data are used	-	PA data form the basis for Decision	PA data can be used	PA data are used
Potential appraisal and Development (PAD)	-	-	PAD data should be used for feedback and counseling	Training may be provided to develop candidates with potential	PAD is based on career plans, and careers plans are prepared using PAD data	-	-	OD Programs can Be undertaken of potential is not Available within the organization	PAD data are Used
Feedback and Performance Coaching (FPC)	-	-	-	Training needs can be identified	Career counseling can be part of this	-	Verbal rewards Can be part of feedback	FPC data can be used for improving the development climate	FPC data can be Used to monitor individual development

Training (T)	-	-	-	-	Training may be undertaken on the basis of career-development Plans	Training can be part of QWL programs	Training can be Used as a reward	Training can be part of OD	Data are used for Promotion decision
Career Planning (CP)	-	-	-	-	-	-	-	Research on promotion patterns can be conducted for OD programs	CP data are used for HR audits and career planning
Employee Welfare and Quality of Work Life	-	-	-	-	-	-	Group efforts can be rewards through QWL measures	OWL improvements can be part of OD activities	Welfare benefits Require data
Rewards	-	-	-	-	-	-	-	-	Data are used for rewards and reward data are entered
OD and Systems Development (OD and SD)	-	-	-	-	-	-	-	-	HRI can be used for system development and OD purposes

*Note.* Adopted from the book Reading in Human Resource Development, Rao (1991), The table above highlights the role of performance appraisal among HRD subsystems. The rows and columns represent HRD mechanisms, and the matrix describes their interrelationships. Eight different subsystems are identified as part of HRD, and the table demonstrates how they are interconnected. It indicates that performance appraisal has a significant influence on other HRD mechanisms.

Rao (1999) the HRD sub-systems or mechanisms should not be thought of in isolation. They are designed to work together in an integrated system although any of them may exist in an organization that does not have an overall HRD plan.

The existing research on PA and HRD has primarily focused on these aspects separately, without exploring their potential integration. Several studies in Nepal and internationally have examined the effectiveness of PA systems and identified issues such as technical and cultural challenges (Mainali, 2010), factors affecting the accuracy of performance evaluation (Pandey, 2019), and employees' perception of satisfaction and outcomes related to PA (Bishowkarma, 2017; Bhurtel & Adhikari, 2016; Pudasaini, 2013; Sharma, 2018).

While some researchers have delved into the HRD aspects in isolation (Singh, 2005; Kumar, Harish, & Gowd, 2016; Sharma, 2018), there is a clear lack of comprehensive studies that explore the relationship between HRD and PA systems. Many of the existing studies have not adequately covered the integration of HRD in the context of PA, and vice versa.

The research aims to address this gap by examining how HRD-oriented PA systems can be effectively linked together. The study will conduct a thorough review of existing literature on both PA and HRD to investigate the potential for a comprehensive HRD

system that incorporates performance appraisal. This integrative approach will contribute valuable insights into optimizing organizational performance and employee development, fostering a more holistic understanding of HRD and PA's interplay.

After thoroughly reviewing the literature and conducting a comprehensive analysis, the study aims to investigate the relationship between the independent variables - planning, monitoring, interlink, and biasness - and the dependent variable, which is the "existing performance appraisal system." By exploring how these independent factors influence the current state of the performance appraisal system, the research seeks to provide valuable insights into improving its effectiveness and alignment with organizational goals. The study recognizes the significance of understanding the impact of planning, monitoring, interlinking, and biasness on the performance appraisal process to enhance overall organizational performance and employee development.

The following hypothesis have been derived from the review of literature and theories.

**H1:** The level of performance appraisal planning positively predicts the degree of HRD orientation in the PA system.

**H2:** A higher degree of performance appraisal monitoring is positively linked to the HRD orientation of the PA system.

**H3:** The presence of strong interlinking between the PA system and other HRD mechanisms positively influences the HRD orientation of the PA system.

**H4:** Reducing biasness and influence in the PA system leads to a greater HRD orientation of the PA system.

**Research Method**

The researcher utilized a sequential explanatory design to collect and analyze data, aiming to examine the performance appraisal system of the APF,Nepal. This design involves first collecting and analyzing quantitative data, followed by the collection and analysis of qualitative data. The sequential exploratory research design is employed to explain, interpret and contextualize the quantitative findings and to investigate unexpected results in more detail through a qualitative study.

The study's population includes all senior officers of the APF,Nepal, which is 1741 (O&M, 2079). The required minimum sample size of 65 was determined with a 12% margin of error and a 90% confidence interval, based on the known population of 1741.

**Table 3**

*Sample Size Calculation*

Class	Number	Percentage	Starta of Sample
Special Class	4	0.22%	1
First Class	49	2.81%	2
Second Class	586	33.65%	21

Third Class	1102	63.29%	41
<b>Total</b>	<b>1741</b>	<b>100%</b>	<b>65</b>

*Note.* The table 3 presents data on different classes and their corresponding numbers and percentages within a sample. The total population is 1,741. It is divided into four classes: Special Class with 4 occurrences (0.22% of the sample), First Class with 49 occurrences (2.81% of the sample), Second Class with 586 occurrences (33.65% of the sample), and Third Class with 1,102 occurrences (63.29% of the sample). The "Start of Sample" column indicates the percentage value from the population. Stratified random sampling divides a population into subgroups (strata) based on relevant characteristics. A random sample is then taken from each stratum, ensuring representation of all groups for more accurate analysis.

$$n_0 = \frac{Z^2PQ}{e^2} = \frac{1.96^2 * .5 * .5}{.12^2} = \frac{.9604}{.0144} = 66.69 ; \therefore n = \frac{n_0}{1 + \frac{n_0}{N}} = \frac{66.69}{1 + \frac{66.69}{1741}} = \frac{66.69}{1.038306} = 64.23 \approx 65$$

A total of 74 samples were collected to increase generalizability and statistical power, surpassing the required sample size of 65. A structured questionnaire was used for the quantitative data collection and an open-ended questionnaire was also developed to gather qualitative information. Total 25 respondents responded to the qualitative questionnaire. Descriptive and inferential statistics were used to examine the quantitative data as well as thematic analysis was executed for the qualitative analysis. The Cronbach's Alpha of the questionnaire was 0.869.

### Performance Appraisal System in Civil Service

The Civil Service Act (1993) introduced the concept of performance-based evaluation for civil servants. Earlier, the focus was on evaluating individual attributes. According to the Civil Service Act, work performance evaluation is conducted at three tiers, involving the supervisor, reviewer, and the review committee (Civil Service Act, 1993).

The primary purpose of performance evaluation in government and public enterprises is to promote employees. It is not used for providing performance feedback, managing rewards, or identifying training and development needs. In the civil service, 40 percent of performance appraisal is confidential, and therefore not transparent to employees (Agrawal & Thakur, 2013).

In the promotion process, performance evaluation is considered the primary factor, while factors like education, training, and experience (seniority) are seen as additional considerations. However, performance evaluation only accounts for 40% of the total weightage in the promotion evaluation, as per The Civil Service Act, 1992. On the other hand, other criteria like seniority (30%), education (12%), service in specific geographical regions (16%), and training (2%), collectively carry respective weight other than the performance evaluation (Civil Service Rule, 1993).

The Nepalicivil service consists of as many as 137,614 civil servants working in central level Ministries, Secretariats, Commissions, as well as in province, local, and district level organizations (Department of Civil Personnel Records, GoN, 2022). These civil servants are classified into technical and non-technical services horizontally, and they

are grouped into gazette, non-gazette, and unclassified categories vertically, each having a different form for performance appraisal.

The Civil Service Rule (1993) further provides the procedure for performance appraisal. In the civil service, they have a bi-yearly performance appraisal and a yearly performance appraisal system. The system includes provisions for self-declaration, supervisor's appraisal, reviewer's appraisal, and the appraisal by the review committee. The supervisor summarizes the bi-yearly performance appraisal of the personnel and assigns appraisal marks accordingly. The description of the works performed must mention a minimum of five works, which should align with the objectives of the organization and the job description of the post.

Clear justification must be provided for giving more than ninety-five percent and less than seventy-five percent marks pursuant to sub-rule (7) of Section 24A of the Civil Service Act 1993. Similarly, the competent authority shall take departmental action against the evaluator who alters marks obtained using correction fluid (tipex) (Civil Service Rule, 1993).

The performance evaluation is conducted based on tasks, and civil staff members undergo bi-yearly appraisals to assess their achievements in specific objectives. This appraisal system places a strong emphasis on objectivity and goal-oriented outcomes.

### **Performance Appraisal System in Nepali Army**

There is "*Sainik Aadhikrit Neki Bedi Karyabidhi 2077*" which is the guiding document for the performance appraisal of the Nepali Army. Rule 39 of the Military Service Regulation (2069) includes the provision for the performance appraisal system of army personnel. According to the regulation, Lt. Colonels or above must fill out two copies, while other military personnel below that rank must fill out one copy of the performance appraisal form. These appraisals should be completed from the fifteenth of Chaitra every year until the end of the same month and must be presented to the unit commander.

When considering promotion from the rank of Major to Lieutenant Colonel, the total marks for performance amount to 43 (forty-three) marks. Among these, two marks are calculated from the average performance appraisal during the tenure of the Lieutenant, ten marks from the average performance appraisal during the Captain, and fifteen marks from the average performance appraisal during the Major. Furthermore, an additional sixteen marks are earned if the Major has experience in commanding the Company. However, if the Major has not commanded then the 2ic (Second in Command or Second Man) appointment becomes the basis for the performance evaluation.

During the promotion from Lieutenant Colonel to Colonel, a total of 44 marks are allocated for the performance appraisal. Among these, 4 marks are derived from the average performance appraisal during the Major Rank, 8 marks from Company Command, 12 marks from the Lieutenant Colonel rank, and 20 marks from Battalion Command (Military Service Regulation, 2069).

These practices highlight the commendable approach of the Army in aligning its

command Task, staff, and other tasks with the performance appraisal process. The clear connection between these tasks reflects the Army's commitment to professionalism. It is evident that reaching high-ranking positions in the Nepali Army requires maintaining discipline and delivering persistent effort.

### **Performance Appraisal System in Nepal Police**

The performance appraisal and evaluation system of Nepal Police are established based on the organizational format and its role. The organization has its own rank-based performance appraisal system, which is extensively provisioned in its regulations.

Article-31 of the Nepal Police regulations provisions the performance appraisal system. Police officers undergo an annual performance evaluation. The evaluation is based on a total of 40 marks, with a maximum of 20 marks given by the supervisor, 10 marks by the reviewer, and 10 marks awarded by the Review Committee. The appraisal system operates independently and centers around the performance delivered by each individual. Key measurement factors include their ethical conduct, permissible contributions, and dedication to duty.

Performance appraisal plays a significant role in the performance, promotion exercise, and commitment of police officers to the goals and objectives of the organization. In the performance appraisal of police officers commanding the district, the Chief District Officer (CDO) of the respective district is also involved. The Supervisor's 20 marks are divided between the Supervisor and the CDO, with 12 marks for the Supervisor and 8 marks for the CDO.

In Nepal Police, there is a rank-based performance evaluation system in place for every individual. A senior rank is responsible for supervision, and two ranks senior oversee the review process. Multiple Review Committees are established to conduct evaluations based on ranks and designated offices. However, it is argued that certain aspects of the system may hinder the effectiveness of the appraisal process in providing an accurate, unbiased, and reliable assessment of individual behavior and performance.

As part of the annual performance appraisal system, every police officer must submit their appraisal form to the Supervisor within a specified timeframe, following the prescribed procedures.

Similar to the Armed Police Force, the Nepal Police has established a structured appraisal system for senior officers. This comprehensive process involves self-declaration, evaluations from supervisors, reviewers, and review committees. As per Police Regulation 2071, the appraisal focuses on ten essential aspects of officer performance, including professional integrity, professionalism, service delivery, communication, leadership, technological literacy, behavior towards subordinates, planning, decision-making, and innovativeness. This holistic approach ensures a thorough assessment of officers' skills, contributing to a well-rounded and effective police force.

The appraisal system allocates 40 marks for promotion, making it a crucial factor in

maintaining discipline, consistency, and professionalism within the organization. By emphasizing individual performance, ethical behavior, and dedication, it contributes significantly to the growth and effectiveness of the Nepal Police. This approach ensures that officers are well-equipped to serve their roles and responsibilities efficiently, ultimately leading to a more efficient and competent police organization.

### **Performance Appraisal System in APF**

The APF, is a federal police organization under the Government of Nepal, established in 2000 AD. APF, currently comprises 37,153 personnel. Being a central police force, it has deployed its personnel across all districts of Nepal. The Armed Police Rule, 2072, outlines the provisions for the Performance appraisal system, which follows a yearly appraisal process. In security organizations like the APF, promotion is significantly dependent (40%) on employees' performance and seniority.

In the Armed Police Regulation (2072), a performance appraisal system is explicitly mentioned. All personnel are required to write down a self-declaration of their tasks delivered during the year in four broad areas: a) Maintaining peace and security, Implementation/Leadership and Responsibility b) Management and Coordination, c) Motivation to the subordinates and Initiative and d) any other significant tasks they have undertaken.

There are three tiers of performance evaluation: the first involves the supervisor, the second involves the reviewer, and the third involves the review committee. Each tier carries a different weight: 50% for the supervisor, 25% for the reviewer, and 25% for the review committee. The performance is evaluated based on three criteria: individual characteristics, work efficiency, and the status of implementation. Under the individual characteristics, there are eight different indicators. Similarly, under work efficiency and status of implementation, there are eight and four indicators, respectively

In the APF, promotions to higher positions follow a specific allocation of weights: 40 percent based on performance appraisal results, 20 percent on seniority, and varying percentages for factors such as academic qualifications, training, and accomplishment of challenging jobs.

In the context of APF, there is a monthly appraisal system in place, but it lacks formalization in the final appraisal process. One significant concern with the performance appraisal system is the tendency to assess diverse mandates and tasks under common headings, mainly due to the organization's varying responsibilities and objectives. This approach of generalized evaluation may not accurately capture the nuances and specific achievements of individuals within the organization, potentially leading to skewed or unfair assessments during the appraisal process. Addressing this issue could lead to a more accurate and equitable evaluation of employees' performance and better support the organization's goals and objectives.

After analyzing the literature, it is found that the independent variables are "planning," "monitoring," "interlink," and "biasness," while the dependent variable is the "existing performance appraisal system."

## Descriptive Statistics

**Table 4**

*Descriptive Statistics (Summary)*

Descriptive Statistics (Summary) N=74		
	Mean	Std. Deviation
Planning	2.8486	.87761
Monitoring	3.0324	.89076
Interlink	2.2432	.87333
Biasness	2.0135	.89402
Existing Performance Appraisal System	3.1297	.95052
Average Mean	2.6538	

*Note.* A total of 74 responses (denoted by N) were collected from the questionnaire. Five independent variables were measured using five questions each, utilizing a Five-Point Likert scale. The mean value in the column represents the average response from the 74 participants. The standard deviation indicates the variability of responses. A higher standard deviation suggests greater variability, while a lower standard deviation indicates data points closer to the mean. In this study, a low standard deviation with the highest mean is considered good. The data was analyzed using the statistical software (Statistical Package for the Social Sciences, SPSS), and the table shows the outcomes of the analysis based on the survey data collected in 2022.

The data presented in Table3 provides a comprehensive overview of the descriptive statistics for various dimensions of the performance appraisal system in the APFNepal. The mean values indicate that performance monitoring received the highest rating (3.0324), suggesting that it is relatively well-implemented and recognized as an essential aspect of the appraisal process. Meanwhile, planning (2.8486) and interlink with other administrative systems (2.2432) scored slightly lower, indicating areas that require attention and improvement. Moreover, biasness in the performance appraisal process was rated relatively low (2.0135), implying a level of fairness in evaluations.

Furthermore, the mean value of 3.1297 for the existing performance appraisal system suggests a positive orientation towards HRD. While the system does not require a complete overhaul, it does necessitate further enhancements in planning, monitoring, interlink, and biasness to ensure a more robust and effective performance appraisal process.

In addition to that, with an average mean score of 2.6538, APF surpasses the mid-value of 2.5, indicating positive signs of having an HRD climate. Nevertheless, there is still potential for further improvement in the system to attain even more favorable outcomes. It's important to acknowledge that APF Nepal is presently aligned with HRD principles.

The findings from the descriptive statistics provide valuable insights for policymakers and stakeholders to fine-tune the existing system and foster a fair and growth-oriented appraisal environment in the Armed Police Force.



## An Inferential Statistic

**Table 5**

*Correlations*

		Correlations N=74				
		Planning	Monitoring	Existing Performance Appraisal System	Interlink	Biasness
Existing Performance Appraisal System	Pearson Correlation	.619**	.605**	1	.678**	.520**
	Sig. (2-tailed)	.000	.000		.000	.000

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

*Note.* The Pearson Correlation coefficient "r" measures the linear relationship between variables, ranging from -1 to +1. Positive values indicate a positive correlation, negative values show a negative correlation, and values close to zero suggest weak or no correlation. The Sig. (2-tailed) indicates the significance level of the correlation, determining if it is statistically significant. N represents the sample size used for the analysis. In the table, correlations between "Existing Performance Appraisal System" and other variables are shown, along with their significance levels. The data was analyzed using the statistical software SPSS, and the table shows the outcomes of the analysis based on the survey data collected in 2022.

The correlation analysis, as presented in Table5, reveals the interrelationship among the different aspects of the existing performance appraisal system in the APF. The pearson correlation coefficients indicate the degree of association between variables. A significant positive correlation is observed between existing performance appraisal and each of the following: performance planning (correlation coefficient = 0.619\*\*), performance monitoring (correlation coefficient = 0.605\*\*), interlink of performance appraisal with other hrd mechanisms (correlation coefficient = 0.678\*\*), and biasness (correlation coefficient = 0.520\*\*). These significant correlations signify that when there are changes in one variable (e.g., performance planning), it is accompanied by corresponding changes in the existing performance appraisal system. In other words, an improvement in performance planning, monitoring, interlink, and biasness is likely to positively influence the overall effectiveness of the performance appraisal system. The findings highlight the importance of addressing these interconnected variables collectively to enhance the overall performance appraisal process and foster a more robust and comprehensive HRD-oriented appraisal system in the APF.

### Regression

The presented ANOVA table displays the results of a regression analysis aimed at understanding the impact of various independent variables on the dependent variable "Existing Performance Appraisal System" in the context of the APF. The model uses

four predictors, namely "biasness," "planning," "monitoring," and "interlink." Regression analysis allows us to determine which of these factors matter most, which can be ignored, and how they interact with each other to influence the dependent variable.

$$Y_i = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 \dots\dots\dots (i)$$

*Note.* The multiple linear regression model allows us to estimate the relationship between the dependent variable and multiple predictor variables simultaneously. By fitting this model to the data and estimating the coefficients, we can make predictions for the dependent variable based on the values of the predictor variables and understand the individual and combined effects of the predictors on the dependent variable.

The equation  $Y_i = \beta_0 + \beta_1x_1 + \beta_2x_2 + \beta_3x_3 + \beta_4x_4$  represents the relationship between the dependent variable (existing performance appraisal system) and the independent variables (biasness, planning, monitoring, and interlink).

**Table 6**

*Analysis of Variance (ANOVA)*

ANOVA						
S.N.	Model	Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	35.711	4	8.928	20.368	.000b
	Residual	30.244	69	.438		
	Total	65.955	73			

a. Dependent Variable: Existing Performance Appraisal System

b. Predictors: (Constant), Biasness, Planning, Monitoring, Interlink

*Note.* The Sum of Squares represents the total variability in the dependent variable (Existing Performance Appraisal System) that can be attributed to the predictor variables (Constant, Biasness, Planning, Monitoring, Interlink). Degrees of Freedom (Df) is the number of independent pieces of information available for estimating a parameter. Mean Square (MS): The Mean Square is calculated by dividing the Sum of Squares by the corresponding Degrees of Freedom. F-ratio (F) is the test statistic used to assess whether the model's explanatory power is significantly greater than what would be expected by chance. It is calculated by dividing the "Regression MS" by the "Residual MS." In this table, the F-ratio is 20.368 (8.928 divided by 0.438). The significance level (p-value) indicates the probability of observing the F-ratio if there were no true effect of the predictors (null hypothesis). A low p-value (usually less than 0.05) indicates that the model's explanatory power is statistically significant. In this table, the significance level is highly significant ( $p < 0.001$ ). The data was analyzed using the statistical software SPSS, and the table shows the outcomes of the analysis based on the survey data collected in 2022.

The ANOVA table shows the breakdown of variance into two components: the variance explained by the regression model (Regression) and the unexplained variance (Residual). The "Regression" row reveals that the model, incorporating all four predictors, is statistically significant ( $p$ -value = .000), indicating that these predictors collectively have a substantial impact on the "Existing Performance Appraisal System" variable.

The calculated F-value of 20.368 further confirms the significance of the regression

model. This value, when combined with the low p-value, suggests that the model is meaningful and provides valuable insights into the variation observed in the "Existing Performance Appraisal System" variable.

The ANOVA results support the importance of the predictors (Biasness, Planning, Monitoring, and Interlink) in explaining the variation in the "Existing Performance Appraisal System" variable within the APF. These findings contribute to a better understanding of the factors that influence the performance appraisal system and offer valuable implications for improving HRD-oriented performance appraisal practices in the organization.

**Table 7**

*Coefficients*

S.N.	Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.767	.293		2.615	.011		
	Planning	.196	.133	.181	1.469	.146	.439	2.278
	Monitoring	.265	.127	.249	2.097	.040	.473	2.115
	Interlink	.465	.137	.427	3.384	.001	.417	2.396
	Biasness	-.021	.126	-.020	-.166	.868	.472	2.117

a. Dependent Variable: Existing Performance Appraisal System

*Note.* B represents the unstandardized regression coefficients, also known as regression weights. They show the estimated magnitude and direction of the relationship between each predictor variable (Planning, Monitoring, Interlink, and Biasness) and the dependent variable (Existing Performance Appraisal System). Std. Error (Standard Error) measures the accuracy of the coefficient estimates. It shows the average amount of variability or uncertainty in the B values. Smaller standard errors indicate more precise estimates. Beta represents the standardized regression coefficients. These coefficients allow for comparison of the relative importance of each predictor variable since they are expressed in standard deviation units. Larger Beta values indicate stronger contributions to the dependent variable. The T-value is the ratio of the unstandardized coefficient (B) to its standard error. It is used to test the statistical significance of each predictor's contribution. Higher T-values indicate more significant relationships. Sig. (Significance): The significance level (p-value) Sig. indicates the probability of observing the T-value if there were no true effect of the predictor variable (null hypothesis). A low p-value (usually less than 0.05) indicates a statistically significant relationship. Tolerance and Variance Inflation Factor (VIF) are measures of multicollinearity, which assesses whether predictor variables are highly correlated with each other. High multicollinearity can affect the reliability of regression estimates. Tolerance values close to 1 and VIF values around 1 indicate low multicollinearity.

The coefficients table (Table 7) presents the results of the regression analysis, highlighting the relationships between the independent variables (Planning, Monitoring, Interlink, and Biasness) and the dependent variable (Existing Performance Appraisal System) in the context of the APF .

It shows that the coefficient value of “Monitoring” and “Link With Other HRD Mechanisms” have Sig. value 0.040 and 0.001. The Sig. value less than 0.05 denotes that these variables must be strong to achieve the objectives.

The "Monitoring" and "Interlink" exhibit statistically significant relationships with "Existing Performance Appraisal System." "Monitoring" has a coefficient of 0.265 and a p-value of 0.040, while "Interlink" has a coefficient of 0.465 and an extremely low p-value of 0.001. These results indicate that both "Monitoring" and "Interlink" have a positive and substantial impact on the "Existing Performance Appraisal System" score.

The standardized coefficients (Beta values) provide a measure of the relative importance of each independent variable. Among the predictors, "Interlink" stands out with the highest standardized coefficient of 0.427, indicating its significant influence on the dependent variable. "Monitoring" also has a considerable impact with a Beta value of 0.249.

The collinearity statistics (Tolerance and VIF) indicate that multicollinearity is not a concern in the model, as all VIF values are well below the threshold of 3.

There is another significant result shown that if the biasness is increased by 1 there is the negative impact will increase by 0.021%. It shows that biasness has negative relationship with PA system.

The analysis shows that "Monitoring" and "Interlink" are the key factors that strongly influence the "Existing Performance Appraisal System" in the APF. While "Planning" and "Biasness" also play a role, their impact is not statistically significant. To enhance the performance appraisal system, the organization should focus on improving the monitoring process and strengthening the interlinkages with other HRD mechanisms. These findings provide valuable guidance for improving the performance appraisal system and promoting HRD within the organization.

The result showed the logical result, that to have a excellent performance appraisal system, there should be strong link among HRD mechanisms. The improvement in the linking system positively affects 46.5% in overall performance appraisal system and performance appraisal monitoring positively affects 26.5% .

### **Hypothesis Testing**

Performance appraisal planning has a statistically significant beta coefficient of 0.196 with p-value (0.146) >(0.05). There is sufficient evidence to accept null hypothesis for this statement indicates that there is not enough evidence to conclude that the level of performance appraisal Planning has a statistically significant positive relationship with the degree of HRD orientation in the Performance Appraisal system at the 5% significance level.

Performance appraisal monitoring has a statistically significant beta coefficient of 0.249 with p-value (0.040) <(0.05). There is sufficient evidence to reject null hypothesis for this statement indicate that there is a strong relationship of performance appraisal monitoring with performance appraisal system.

Link with other HRD mechanisms has a statistically significant beta coefficient of 0.465 with p-value (0.001) <(0.05). There is sufficient evidence to reject null hypothesis for this statement indicate that interlinking between the PA system and other HRD mechanisms positively influences the HRD orientation of the PA system.

Reducing biasness has a statistically significant beta coefficient of - 0.021 with p- value 0.868 >0.05 There is sufficient evidence to reject null hypothesis for this statement. There is sufficient evidence to accept null hypothesis for this statement indicate that there is no relationship of reducing biasness and Influence with performance appraisal system. Hence, I reject null hypothesis. This means that there is association between Reducing Biasness and HRD oriented PA system.

### **Evaluating the Effectiveness of Performance Appraisal in APF: Challenges and Recommendations**

The qualitative analysis is based on qualitative questions asked to the respondents. A total of 25 respondents responded to the qualitative questions, and informal discussions with the respondents were also used as the basis of the analysis.

*APF has been evaluating its employees' performance under certain specific headings but lacks the tools and methods to measure the performance effectively. Although the performance appraisal system does exist in APF, its effectiveness and implementation are very weak*

The APF has provisions in its regulations concerning the performance appraisal system of its personnel. The performance appraisal primarily focuses on and is used for the promotion criteria and process within the APF rather than identifying individual and organizational development gaps. APF has developed a standard format and template for the performance appraisal process of its personnel. One of the respondents stated that

*The APF considers only the last four years' performance appraisal marks for promotions. This practice should be reviewed as it may not accurately generalize the overall performance of the officers.*

The performance appraisal in APF doesn't cover modern approaches, such as self-assessment, 360-degree evaluation, and peers' evaluation. The traditional method of performance appraisal does not evaluate employees' performance in its true meaning. The one-way evaluation system always tends to risk biasness while conducting performance appraisals. This further leads to unfair evaluations in which employees are judged not by their accomplishments but by their likability.

*Performance appraisal should be based on the objective measurement of the performance*

Feedback mechanism - Performance appraisal is also a part of the organization's process of understanding its employees better and giving them feedback to help improve their performance. However, the performance appraisal system in APF lacks the provision to provide proper feedback about performance to enhance employees' performance. The periodic performance feedback for APF personnel is not provided under the current

appraisal provision in Nepal. Performance appraisals in APF are also not utilized for an employee's personal and professional development. Instead, the appraisal is conducted merely to fulfill routine administrative duties. It should be conducted based on the strengths and weaknesses of employees. The appraisal system in APF doesn't identify areas for improvement and fails to help employees enhance their professional skills and knowledge for better performance, individual development, and organizational growth.

*The appraisal system should be systematic, regularly monitored by a monitoring committee, and include training and pre-evaluation classes for the commanders who will conduct the evaluations. Commanders who provide truthful evaluations should be encouraged, and they should be held accountable for their evaluations.*

The performance of APF personnel is not being properly supervised. The performance appraisal is conducted annually in APF. In most cases, the performance of APF personnel is supervised by different supervisors in various ways. During the performance appraisal, the evaluation is done by the last supervisor based on their limited supervision period. As a result, the appraisal is not conducted based on the entire year's performance but rather on the last supervision period.

*Evaluating the performance appraisal based on job descriptions.*

The current performance appraisal system adopted in APF doesn't help employee to set clear objectives and at the same time doesn't set of factors to evaluate employees based on their skills set. Furthermore, the criteria under which the performance of APF, Nepal's personnel are being evaluated lacks the well-defined performance criteria under specific roles and responsibilities during performance period. The job period, previous experience in the field, training and other factors and dimensions of performance appraisal are not considered during the performance appraisal in APF.

*We should make it scientific as well as transparent.*

Most of the time, the performance of APF employees is evaluated by administrative staff rather than their immediate supervisor. Moreover, APF employees don't consider the appraisal as vital for their individual and career development since it doesn't provide rewards or punishment for excellent or poor performance. The performance of all APF personnel is evaluated using the same criteria, even though they work in different difficult fields and services within the organization. APF doesn't have a field and service-specific performance evaluation system, leading to an unrealistic performance appraisal system. Technical, administrative duty, command and instructor duties are appraised under the same criteria, which doesn't seem scientific and practical.

*The overall performance appraisal system is objectively needed to modify on the basis of given mandate. The annual individual deployment roster should be prepared and it should be connected to appraisal system.*

The performance appraisal doesn't appear to be considered a key factor for the career development of APF personnel. Despite the promotion criteria allocating more marks for performance appraisal, it doesn't seem to significantly contribute to individual career

development. Instead, employees with strong political affiliations but fewer skills seem to be rewarded with organizational opportunities like promotions and command positions, while those with excellent performance are not sometimes adequately rewarded.

The basic evaluation of APF's personnel is managed using a developed format that includes discipline, decency, work efficiency, and implementation evaluation. Although these indicators are practical, scientific, and genuine, there is a strong need for objective assessment for each performance appraisal indicator. If these shortcomings are addressed, the PA system of APF could become one of the most competent and scientific methods among other government sectors.

### **Discussion**

The evaluation of the performance appraisal system in the APF, based on statistical data and feedback from respondents, reveals several significant findings. It is evident that there is a strong need for performance appraiser's training in the APF, as indicated by the low mean value of 2.22, suggesting that appraiser training is rarely provided. This lack of training contributes to biasness in measurement and highlights the necessity to clarify the performance appraisal method.

The analysis also shows that personnel's job-related performance is rarely measured, with a mean value of 2.41. The absence of formal job descriptions and performance standards leads to biasness in the performance appraisal process, emphasizing the demand for clear job descriptions for employees.

The frequency of performance review needs improvement, as the current quarterly review system may lead to biased assessments based on recent success or failure. A regulated and monitored performance review system, with an emphasis on addressing yearly performance appraisal needs, would be beneficial.

Moreover, the research reveals the significant role of the review committee in the performance appraisal process in APF, and the time allocated for the PA process plays a crucial role in strengthening the system.

Appraisal interviews and feedback to employees are essential components of the PA system, which require attention and implementation in the APF. While superior review is a major strength, it is concerning that supervisors do not adequately review appraisals, often forwarding or authenticating results proposed by the Performance Supervisor/Appraiser.

Although the contribution of Performance Appraisal marks to promotion and individual development is positively perceived at 40%, the lack of "Potential Appraisal" hinders employee training needs, succession planning, rewards, pay, and incentives. This necessitates corrections in the PA method.

The research highlights the need for Performance Targets in the APF to reduce biasness and improve the PA system towards HRD. Additionally, the complaint mechanism requires improvement.

The existing performance appraisal System shows strong points such as proper reporting, a formal appraisal system, opportunities for self-review and reflection, and a quarterly feedback system. The orientation of the Existing Performance Appraisal System towards HRD is evident. In addition to that, it also assures the HRD climate in APF.

The correlation and regression analyses emphasize the importance of Performance Appraisal Monitoring and Linkage with other HRD mechanisms in achieving an HRD-oriented PA system in the APF.

The feedback from the survey indicates that an objective evaluation system, evaluation by immediate supervisors, proper feedback, service-specific evaluation criteria, well-defined performance criteria, and linkage with career development and welfare benefit schemes are essential. Moreover, separate performance appraisal criteria/forms for employees in different appointments are necessary.

To enhance the effectiveness of the performance appraisal system in the APF, implementing performance appraiser's training, clarifying job descriptions, improving performance review frequency, establishing a formal monitoring system, conducting appraisal interviews, and incorporating potential appraisal are crucial steps. By addressing these areas and fostering a strong link among HRD mechanisms, the APF can develop a more comprehensive and HRD-oriented performance appraisal system, contributing to the organization's overall success and development.

### **The Overall Impression**

From the quantitative (descriptive analysis, inferential analysis) and qualitative (the analysis of the descriptive open-ended data/ responses from the officers of APF) the researcher has derived the final impression of the research as “The PA system of APF is perfectly blameless and systematic. For the better measurement and execution of the PA results APF needs perfection on the performance appraisal method and performance appraisal actors (supervisors, reviewers and review committee and the employee/ appraisee).” There are ample indicators and evidences that shows the HRD climate is presented in APF’s performance appraisal system. Furthermore, APF, Nepal’s performance appraisal system is in alignment with the principles of human resource development.

### **Conclusion**

In conclusion, the research highlights the urgent need for significant improvements in the performance appraisal system of the APF. The study reveals several key areas of concern, including the lack of performance appraiser training, absence of formal job descriptions, and biasness in the appraisal process. Additionally, the research underscores the importance of a strong monitoring system, regular feedback, and performance targets to enhance the HRD orientation of the appraisal system. To achieve a more effective and objective performance appraisal, the organization must address these critical issues and implement necessary reforms to promote fairness, transparency, and career development opportunities for its personnel.



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**Association Between Inter-Agencies Cooperation and Border Governance of Nepal**

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**Abstract**

*Border agency cooperation is the process by which different agencies joins together for the purpose of attaining a common goal in building efficiencies for facilitating international trade, cross border travel by improving cross border security. The government of Nepal has established different agencies to enhance border governance. The purpose of this article is to analyze the relationship between inter-agency cooperation and border governance of Nepal. The research follows a sequential explanatory research design using primary and secondary data. Primary data are extracted from stratified sampling technique using five point likert-scale questionnaires where 202 responses were acquired. The findings show that there is a positive relationship between independent variables of inter-agencies cooperation and border governance of Nepal. Furthermore, inter-agency cooperation and border governance have a positive correlation coefficient of 0.391 at 1 percent level of significant. The regression analysis show interagency cooperation has 30 percent effect in border governance of Nepal. The beta value shows one unit of change in inter-agency cooperation will bring 0.523 unit of change in border governance of Nepal. The study suggest on enhancing information, intelligence & data exchange program on daily basis and improvement on mutual negotiation, synchronized border inspection, and mutual trust within the border governing agencies for maintaining good border governance of Nepal by enhancing service delivery.*

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## Introduction

Border governance involves the ability of government officials to enforce the rules for delivery of services to border population and enhance national defense for public security by protecting state sovereignty against both external and internal security threats posed by vulnerability (Fukuyama, 2013). With the paradigm shift in international model of border governance, and the liberalization of global markets in trade and capital, borders have shifted from fortified military lines to open spaces for commercial transactions (Andreas, 2003). Ejotubu & Jude (2021) define border governance as an act of administering security along state's borders through constitutionally mandated agencies with properly trained security personnel to ensure illegal migrants influx, genuine socio-economic transactions and other related activities. The Coordinated Border Management (CBM) have been adopted by European union countries where border governing agencies and the international community work together to achieve common objective of facilitating cross border movement of people and cross border trade ensuring high safety and security in order to enhance border governance (Doyle, 2010). Article 8 of WTO agreement includes border agency cooperation is one of the key element of trade facilitation which can achieve by cooperation and coordination of their respective mandates, policies and procedures (WTO, 2018).

Good border governance promotes the balance between trade facilitation and cross-border movement of people by enhancing identity Management process in regulatory migration mobility as well as improving accurate identification that controls the borders (Aniszewski, 2009). Due to lack of communication and coordination between border agencies, the vital information necessary to make an informed decision about potential threats, that would leads to inefficient delivery of government services would result in failure of good governance (COMCEC, 2016). Inter-agency cooperation consists sharing of responsibility for regulating and controlling cross border movement of people, flow and transit of commercial goods, predict and plan their operations for security. There is also an opportunity for government agencies to use cooperation mechanisms for simplifying processes to reduce documentary requirements by improving the efficiency and effectiveness of trade transactions and reduce the burden of compliance on traders to increase trade volumes (WCO, 2010). Successful implementation of inter-agency cooperation will yield greater transparency and credibility to customs, trade and security leading a positive correlation with good border governance by fostering transparent, consistent and predictable processes reduces bribes and informal payments to officials and enhances border agency accountability (WTO, 2018).

The government of Nepal has adopted cooperative border management with different clusters agencies to curb the issues for smooth border governance. Different studies and subject matter experts have suggested on enhancing inter-agency cooperation for good border governance. In order to maintain good border governance, there are different functional agencies from policy to operational level. Currently, there are 12 ministries at federal level and 14 departments with 670 borderline agencies in five different

clusters. The central ministry, departments, regional offices, District offices and borderline offices follows both horizontal and vertical hierarchical coordination system to govern the border areas of Nepal (Upreti, 2022).

The specific objective of the study is to analyze the relationship between inter-agency cooperation and border governance of Nepal. In order to meet the objective of the research the following alternative hypothesis has been stated. For this study, hypothesis 1 is "There is significant association between indicators of inter-agencies cooperation", hypothesis 2 is "There is significant association between indicators of border governance" and hypothesis 3 is "There is significant association between inter-agencies cooperation and border governance of Nepal".

### **Review of the Literature**

The African union border governance strategy (2017) defines border governance as an instrument developed to use borders as vectors to promote peace, security and stability, and to improve and accelerate integration through effective governance of borders while facilitating easy movement of people, goods, services and capital among the member countries. Fukuyama (2013) states border governance as actors aside from government such as the World Trade Organization (WTO), the International Organization for Migration (IOM), the International Civil Aviation Organization (ICAO), the World Customs Organization (WCO) and other international security agencies that are involved in cooperative manner for regulating the movement of persons and trade across international borders. Caparini (2006) highlighted democratic governance of border management by removing barriers for trade by reassuring domestic population of state to enforce migration control with generating remittance by shifting responsibility with different stakeholders in collaborative manner and shared goals. World custom organization (2010) argues coordinated border management has existed for many years and refers to a coordinated approach by border control agencies, both domestic and international, in the context of seeking greater efficiencies in managing trade and travel flows, while maintaining a balance with compliance requirements. Standing committee for economic and commercial cooperation of Islam (2016) indicates border governance need to be applied in Technical, operational, legislative and institutional areas for developing social networking among the border citizens by improving border infrastructure.

World custom organization (2010) refers interagency coordination as a coordinated approach by border control agencies, both domestic and international, having Mutual recognitions for building efficiencies in managing trade and travel flows by maintaining a balance with compliance requirements. Coordinated Border Management (CBM) represents an approach to manage borders involving public service agencies working across portfolio boundaries in a coordinated manner to achieve a shared goal thus providing a cohesive government response to the challenges of border management. Standing committee for economic and commercial cooperation of Islam (2016) shows the differences between uncoordinated border management as little or no communication, duplicative control, conflicting requirements, separate functional silos whereas

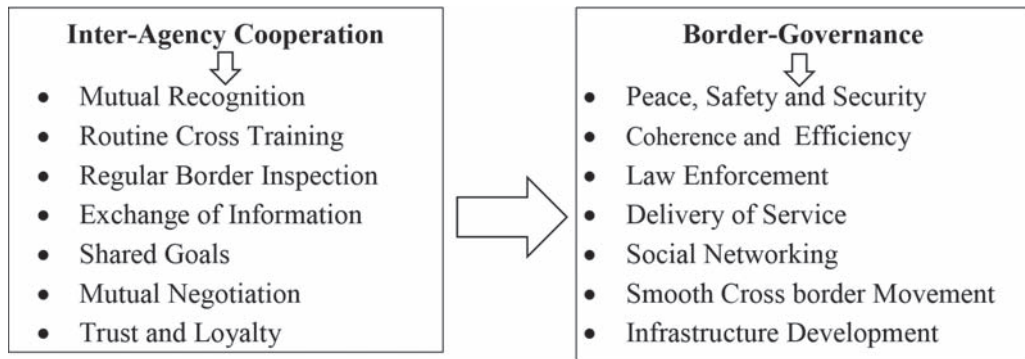
coordinated border management as smooth flow of information, streamlined line control, clarity in requirements, regular border inspections and cross functional collaboration. Polner (2019) highlighted the necessity of interagency cooperation in law enforcement agencies as to increase mutual negotiations, cross trainings for building harmonized trust and loyalty among the agencies member.

**Conceptual Framework**

Most of the countries of the world have been adopting coordinated border management (CBM) model to facilitate international trade and robust border security. It has been a vibrant instrument to enhance international trade faster and easier. More specifically, coordinated border management is a way to enhance operational efficiency among trade, custom, health and security agencies at the border line. The study of the relation between inter-agency cooperation and border governance is a virgin study in the field of border governance of Nepal. By assessing the literature of border governance and coordinated border management the following conceptual framework has been have been developed:

**Figure 1**

*Researcher Conceptual Framework*



*Note. Adapted from literature review where inter-agency cooperation is the independent variables whereas border governance is dependent variable with seven indicators of each other.*

**Methodology**

In order to analyze the relationship between inter-agency cooperation and border governance of Nepal, the research follows a sequential explanatory research design with quantitative approach to test the hypothesis. Both primary data and secondary data are extracted to generalize the concept. Primary data are extracted from stratified sampling technique using five point Likert- scales questionnaire (attached in appendix) and secondary data are extracted from books, newspaper, articles, reports and internet explorer. The five point Likert- scales questionnaire was constituted to measure the inter-agency coordination and border governance of Nepal with their indicators. Altogether, 276 questionnaires were distributed to 12 ministries and 14 departments 50 district agencies 100 borderline units and 100 border citizens at different border crossing points for survey and 202 responses (74%) have been achieved. The respondents from

the ministries and department were the spokesperson whereas from districts agencies and borderline agencies were concern officers. The responder from border citizens were permanent resident at different crossing points of Nepal. The study uses mean, standard deviations, standard error, correlation and regression analysis with the help of Statistical Package for Social Science (SPSS).

In order to measure different independent variables of inter-agency cooperation and border governance, Likert scale values 1, 2, 3, 4, and 5 are taken as 'Strongly disagree', 'Disagree', 'Neutral', 'Agree', and 'Strongly agree' respectively. The value 3 is neutral. This means that the mean score of value 3 indicates no effect of variable. The reliabilities of inter-agency cooperation and border governance of Nepal are tested in seven indicators. The indicators and their values of cronbach's alpha are given below:

**Table 1**

*Reliability Test*

Variables	Corn batch Alpha	Number of Items
Inter-agency Cooperation	0.82	7
Border Governance	0.86	7

*Note.* Adapted from Statistical Package for Social Science (2023).

The result shows the value of corn batch alpha for inter-agency cooperation and border governance are 0.82 and 0.86 respectively which shows that reliabilities of these variables are good. The alpha value above 0.7 is considered as a reliable whereas the alpha value below 0.7 is questionable for inferential analysis (Sekaran, 1992).

### Findings and Analysis

The findings are sequenced according to the research hypothesis. The first hypothesis and second hypothesis assumes there is significant association between indicators of inter-agencies coordination and border governance of Nepal. The responses of all variables are shown in descriptive value and after computing the variables, correlation test is conducted to measure the coefficient and significant. The third hypothesis assumes there is significant association between inter-agency cooperation and border governance. Both independent and dependent variables are correlated with each other and regression analysis is conducted.

### Inter-Agency Cooperation

Inter-agency cooperation is the process by which different agencies joins together for the purpose of attaining a common goal. It involves two or more agencies deciding to work together in partnership to achieve a common goal which is called as horizontal approach cooperation of different organization. The constitution of Nepal has a provision of fulfilling aspirations for sustainable peace, good governance, development and prosperity of the country by adopting all forms of cooperation, co-existence and mutual coordination among all the stakeholders.



The essence of inter-agency cooperation is mutual understanding between the stakeholders. Mutual understanding is the process of knowing each other and knowing responsibility and authority by which work duplication can be reduced. In order to achieve common objective, routine based crossed training are necessary which increases mutual understanding that resulted in healthy cooperation. Border agency cooperation is highly depended upon synchronized border inspection. These tasks are necessary to identify the risk and challenges. In order to reduce risk and challenges, exchange of information is the vital task that increases good governance at border areas of Nepal. All the border governing agencies should have common goals with mutual trust and loyalty. Therefore, these indicators are the determinant factors for good border governance which are extracted from different literature review. The results of the responses are shown below:

**Table 2***Responses of Indicators*

<b>Inter-Agency Coordination</b>	<b>Strongly Disagree (%)</b>	<b>Disagree (%)</b>	<b>Neutral (%)</b>	<b>Agree (%)</b>	<b>Strongly Agree (%)</b>
Mutual Recognition	2	3.5	18.3	58.9	17.3
Routine Based cross training	6.9	10.9	11.9	44.1	26.2
Regular Border Inspection	1.5	24.8	29.2	43.1	1.5
Exchange of Information, Intelligence and data	2	36	27	34	1
Shared Goals	2	19	22	55	2
Mutual Negotiation	3	34	24	23	14
Trust and Loyalty	1.5	28.7	46	16.3	7.4

**Number of Respondents (N) = 202**

*Note.* Adapted from Field Survey (2023).

The table shows the responses of different indicators of interagency cooperation. In the first indicator mutual Recognition of border governing agencies with each other, 17.3% respondents strongly agreed and 58.9% respondents agreed. It shows than 94.5% responses above the value 3. In the second indicator routine based cross training, 26.2% of respondents strongly agreed and 44.1% of respondents agreed which holds 82.2% above the value of 3. In the third indicator synchronized border inspection, only 1.5% respondents strongly agreed and 43.1% agreed accounting 73.8% above the value of 3. Similarly, in exchange of information, intelligence and data of 1% of respondent strongly agreed and 36% disagree. This indicator accounts only 62% above the value of 3. In fifth indicators, harmonized trust and loyalty only 2% strongly agreed and 55% agreed accounting to 79% above the value of 3. In mutual recognition 14% strongly agreed where as 34% disagree. This indicator accounts 61% above the value of 3. In the last indicator, 7.4% strongly agreed and 46% stayed in neutral position accounting to 69.7% above the value of 3. The average value and standard deviation of the responses

are shown in the table below:

**Table 3**

*Descriptive Analysis of Indicators*

S.N.	Indicators	Mean	S.D.	S.E.
1	Mutual Recognition	3.86	0.81	0.58
2	Routine Based cross training	3.72	1.17	0.83
3	Regular Border Inspection	3.18	0.87	0.62
4	Exchange of Information, Intelligence and data	2.96	0.89	0.63
5	Shared Goals	3.35	0.87	0.62
6	Mutual Negotiation	3.12	1.13	0.79
7	Trust and Loyalty	2.99	0.91	0.64
<b>Inter-Agency Cooperation</b>		<b>3.32</b>	<b>0.39</b>	<b>0.28</b>
<b>Number of Respondents (N) = 202</b>				

*Note.* Adapted from Research Findings (2023). Mean values are the averages values of the total responses, S.D are the standard deviation which measures the variations. Lower standard deviation indicates the values closer to mean. S.E is standard error.

In the table, mean and standard deviation of all the indicators are shown. The mean responses of all indicators range from 2.96 to 3.86. Among all the indicators, mutual recognition has the highest mean value of 3.86 with standard deviation of 0.81 which means most of the respondent agreed that border governing agencies of Nepal are having a good mutual recognition with each other. The lowest standard deviation tends to be closer to the mean which shows more accuracy of data and comply with a perfect normal distribution. The mean value and standard deviation for exchange of information, intelligence and data are 2.96 and 0.89 respectively. This is the lowest mean value which indicates there are less exchange of information, intelligence and data among the border governing agencies. Furthermore, computing all indicators the composite mean and standard deviation of inter-agency cooperation are 3.32 and 0.39 respectively, which is a normally distributed curve. The correlation analysis of indicators of inter-agency cooperation is shown in the table below.

**Table 4**

*Correlation Coefficient of Indicators*

S.N.	Indicators	Inter-Agency Cooperation	P Value
1	Mutual Recognition	.452**	.000
2	Routine Based Cross Training	.537**	.000
3	Synchronized Border Inspection	.509**	.000
4	Exchange of Information, Intelligence & data	.114	.107
5	Shared Goal	.452**	.000
6	Mutual Negotiation	.320**	.000

7	Trust and Loyalty	.495**	.000
** Correlation is significant at the 0.01 level (2-tailed)			
* Correlation is significant at the 0.05 level (2-tailed)			

*Note.* Adapted from Research Findings (2023). Correlation coefficient range from -1 to +1 to measure relationship, P-value is the probability value for inferring hypothesis result.

In the table, the relationship between indicators of inter-agency cooperation is explained. The correlation coefficient closer to 1 is more statically significance. The values below 0.2 have a negligible relationship, value from 0.2 to 0.4 has low relationship, value from 0.4 to 0.7 has moderate relationship, and value from 0.7 to 0.9 has high relationship and value above 0.9 have very high relationship (Muchinsky, 1993; Parivizifard et al, 2012). The first indicator, mutual recognition has a correlation coefficient of 0.452 with P-value of 0.00 which is less than 0.05. It means that mutual recognition has moderate relationship at 1% Level of significant with inter-agency cooperation. Others indicators, routine based cross training, synchronized border inspection, shared goals, mutual negotiation and trust & loyalty have a positive coefficient of with P-value of 0.00 which is less than 0.05. It means that all these variables are moderately correlated at 1% level of significant with inter-agency cooperation. The P-value of Exchange of information, intelligence and data is more than 0.05 which is not significant and is not correlated with inter-agency cooperation. This indicator needs to be improved by all the border governing agencies.

### Result of Hypothesis 1

Since the P-value of all the indicators (Except exchange of information, intelligence and data) are less than 0.05 at 1% level of significant, there is association between independent variables of inter-agencies cooperation.

### Border Governance of Nepal

Governing the borders is daunting task of any nation. It is the involvement of both national and international agencies working together for common goal. Peace and safety are the first factor of good border governance. Border agencies working in efficient manner promotes the sense of patriotism among the citizens. It is necessary for all agencies to work in efficient manner to provide needful services. The service provide by these agencies are peace and security, cross border movement facilitation, revenue collection, health care and infrastructural development. To measure border governance of Nepal Seven indicators were extracted from different literature review which is similar to good governance Act 2064. The results of the responses are shown below:

**Table 5**

*Responses of Indicators*

Border Governance	Strongly Disagree (%)	Disagree (%)	Neutral (%)	Agree (%)	Strongly Agree (%)
Peace, safety and security	13	44.1	23.8	12.9	5.4

Coherence and Efficiency	9.9	36.1	23.8	24.8	5.4
Law Enforcement	15.8	12.9	58.4	11.4	1.5
Delivery of Service	2	26.7	36.6	32.7	2
Social Networking	2	40.1	41.5	14.9	1.5
Smooth Cross border Movement	2	22.8	37.1	36.6	1.5
Infrastructure Development	41.1	16.8	33.2	7.4	1.5

**Number of Respondents (N) = 202**

*Note.* Adapted from Field Survey (2023).

The table shows the responses of the indicators of border governance. In the first indicator Peace, safety and security only 5.4% respondents strongly agreed and 12.9% respondents agreed where as 13% strongly disagreed and 44.1% disagreed. It shows than only 42.1% responses above the value 3. In the second indicator greater efficiency, 5.4% of respondents strongly agreed and 24.8% of respondents agreed which holds 54% above the value of 3. In the third indicator law enforcement, only 1.5% respondents strongly agreed and 11.4% agreed accounting 71.3% above the value of 3. Similarly, in delivery of service 2% of respondent strongly agreed and 32.7% disagree. This indicator accounts only 71.3% above the value of 3.

**Table 6**

*Descriptive Analysis of Indicators*

S.N.	Indicators	Mean	S.D.	S.E.
1	Peace, safety and security	2.52	1.06	0.75
2	Greater Efficiency	2.79	1.09	0.77
3	Law Enforcement	2.69	0.93	0.65
4	Delivery of Service	3.06	0.87	0.62
5	Social Networking	2.74	0.79	0.56
6	Smooth Cross Border Movement	3.13	0.85	0.59
7	Infrastructure Development	2.12	1.07	0.76
<b>Border Governance</b>		<b>2.73</b>	<b>0.71</b>	<b>0.49</b>

*Note.* Adapted from Research Findings (2023).

In fifth indicator, social networking only 1.5% strongly agreed and 14.9% agreed accounting to 57.9% above the value of 3. In smooth cross border movement 1.5% strongly agreed where as 36.6% disagree. This indicator accounts 75.2% above the value of 3. In the last indicator, 1.5% strongly agreed and 7.4% agreed accounting to 42.1% above the value of 3. The average value and standard deviation of the responses are shown in the table above.

In the table, mean and standard deviation of all the indicators are shown. The mean responses of all indicators range from 2.12 to 3.13. Among all the indicators, smooth cross border movement has the highest mean value of 3.13 with standard deviation of

0.85 which indicates a smooth cross border movement of people. The mean value and standard deviation for infrastructure development are 2.12 and 1.07 respectively. This is the lowest mean value which indicates there is fewer infrastructures development at border areas of Nepal. Furthermore, computing all seven indicators the composite mean and standard deviation of border governance are 2.73 and 0.71 which is a normally distributed curve. The correlation of analysis of indicators of inter-agency coordination is shown in the table below:

**Table 7**

*Correlation Coefficient of Indicators*

S.N.	Indicators	Border Governance	P Value
1	Peace, safety and security	.785**	.000
2	Greater Efficiency	.907**	.000
3	Law Enforcement	.606**	.000
4	Delivery of Service	.374**	.000
5	Social Networking	.849**	.000
6	Smooth Cross border Movement	.817**	.000
7	Infrastructure Development	.884**	.000

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

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

*Note.* Adapted from Research Findings (2023).

In the table, the relationship between indicators of border governance is explained. The first indicator, peace, safety and security have a correlation coefficient of 0.785 with P-value of 0.00 which is less than 0.05. It means that peace, safety and security are highly correlated at 1% Level of significant with border governance. Next indicator greater efficiency has a correlation coefficient of 0.907 which is highly correlated with border governance. Similarly, law enforcement has a correlation coefficient of 0.606 which have a moderate relationship with border governance. The delivery of service has a correlation coefficient of 0.374 which shows a low relationship with border governance. Even though this indicator has the second highest mean value, its relationship with border governance is comparatively low. Therefore, all concerned the agencies need to abide service delivery for better improvement. Rest of the indicators i.e. social networking, smooth cross border movement and infrastructure development have a positive coefficient above 0.8 which is highly correlated with border governance. All the indicators of border governance are positively correlated with border governance.

## **Result of Hypothesis 2**

Since the P-value of all the indicators are less than 0.05 at 1% level of significant, there is association between indicators of border governance of Nepal.

## **Inter-Agency Cooperation and Border Governance of Nepal**

In order to test the relationship of inter-agency cooperation and border governance of

Nepal, the composite mean and standard deviation are shown in the table below.

**Table 8**

*Descriptive Analysis of Inter-agency Cooperation and Border Governance*

	Mean	S.D.	S.E.
Inter-Agency Cooperation	3.32	0.39	0.28
Border Governance of Nepal	2.73	0.71	0.49

*Note.* Adapted from Research Findings (2023).

The mean value of inter-agency cooperation is 3.2 with standard deviation of 0.39 and means value of border governance is 2.8 with standard deviation of 0.7. The mean value and standard deviation of border governance is lower than inter-agency cooperation which means than inter-agency is more consistence than border governance. Furthermore, the correlation analysis is shown below:

**Table 9**

*Correlation Coefficient of Inter-Agency Cooperation and Border Governance*

		Border Governance
Inter-Agency Cooperation	Pearson Correlation	0.391**
	Sig. (2-tailed)	.000
	N	202

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

*Note.* Adapted from Research Findings (2023).

The table shows the correlation analysis of inter-agency cooperation and border governance of Nepal. The P-value of correlation coefficient is 0.00 which is less than 0.05. It is statically significant at 1% level of significant. The correlation coefficient of inter-agency cooperation and border governance is 0.391. The result indicates that there is a positive correlation with moderate relationship to each other. Furthermore, the regression coefficient of dependent and independent are show in the table below:

**Table 10**

*Regression Analysis Inter-Agency Cooperation and Border Governance*

Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.988	.405		2.438	.016
	Interagency Cooperation	.523	.121	.391	4.309	.000
<b>R2=0.35</b>		<b>Adjusted R2=0.30</b>		<b>F. Stat =18.56</b>		<b>F. Sig = 0.000</b>

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Dependent Variable: Border governance

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*Note.* Adapted from Research Findings (2023).

The table shows the regression analysis between interagency cooperation and border governance. The adjusted R<sup>2</sup> value is 0.30 which means that the independent variable i.e. interagency cooperation have 30% effect in dependent variable i.e. border governance. Likewise, F. Sig value is 0.00 which means that the model is significant for study. The beta value of interagency cooperation is 0.523, which means one unit of change in inter-agency cooperation will bring 0.523 unit of change in border governance of Nepal. The regression equation of the study is as shown:

$$\text{Border governance} = 0.988 + 0.523 \text{ Interagency cooperation} + 0.121$$

### **Result of Hypothesis 3**

Since the P-value of inter-agency cooperation and border governance are less than 0.05 at 1% level of significant, there is significant association between inter-agencies cooperation and border governance of Nepal.

### **Discussion**

After the unification of Nepal, there have been significant role of administrative and security agencies in promoting good governance. These agencies were mandated to protect the border areas, secure the border pillars, collect the revenue and facilitate the cross border movement of people. Due to the open border with India, there has been an instant threat to nation security. Therefore, all the regulatory and monitory agencies need to have a deep cooperation to promote good governance. The findings of this research show that the indicators of inter-agencies cooperation and border governance are correlated with each other. In order to have a cordial relation between border governing agencies of Nepal, exchange of information, intelligence and data plays a crucial role. The research suggest on enhancing information, intelligence and data exchange program on daily basis. Other indicators of inter-agency cooperation such as trust & loyalty of border governing agencies, synchronized border inspection and mutual negotiation are at the averaged figure which also needs to be improved. The mean figure of border governance is below the average value which indicates that there is need of improvement in maximizing the governance at border areas of Nepal. The infrastructural development of border area is below the value of 2.5 which indicates poor condition of infrastructure and resources which need to be reformed. Similarly, the correlation between inter-agency cooperation and border governance is only 0.39, which means that other independent and moderating variables like existing legal jurisdiction of agencies, technological adaptation, border governance policy, foreign policy and diplomatic procedure need to be taken as a determinant factors for good border governance. In order to build a strong relationship between interagency and border governance, the indicators which have a lower correlation coefficient like exchange of information, service delivery and mutual negotiation need an urgent improvement from concern authority.

## Conclusion

Inter-agency cooperation is a major determinant factor of good border governance. The objective of this research is to establish relation between inter-agency cooperation and border governance. The research concludes by establishing the relationship between inter-agency cooperation and border governance of Nepal. However, there are many factors required for enhancing interagency cooperation. Lack of information exchange program, synchronized border inspection and trust within the border governing agencies are the areas for improvement. Also, border areas infrastructural development, enhancing service delivery are the major hazards of border governance. It is necessary to take pertinent steps from all the sectors of nation in order to strength governance at border areas of Nepal. Among different measures, policy refinement for border governance should be promptly taken in actions. Further research can be conducted on different variables of inter-agency cooperation and border governance.

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