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Uranium in Nepal: A power struggle on its utilization

Ananta Aryal[1], Sahadev Gautam[2*], Arjun Aryal[3] and Shanta Budha-Magar[4]

1 Labour Studies Program, Tribhuvan University, Kathmandu, Nepal.
aryalfour@gmail.com orcid.org/0000-0003-3518-114X
2 Public Administration Campus, Tribhuvan University, Kathmandu, and Anthropology, Trichandra Multiple Campus, Kathmandu, Nepal.
*Corresponding Author sgautam@cdpa.edu.np orcid.org/0000-0002-1199-0842
3 Central Department of Political Science, Tribhuvan University, Nepal.
Arjunaryal044@gmail.com orcid.org/0009-0004-4140-4471
4 Environmental Management, North Tec, New Zealand.
shantabmgr@gmail.com orcid.org/0000-0003-2599-063X

Abstract

Uranium is a key component for sustainable nuclear energy and effective resource management. This study investigates the complex dynamics surrounding natural uranium resources in Upper Mustang, Nepal, focusing on local, national, and international interests and the power struggles that emerge from competing stakeholders' objectives. Using a qualitative approach, 32 in-depth interviews were analyzed through thematic and narrative interpretation. Findings show a strong local desire for resource preservation. However, concerns over the technical and financial requirements of uranium management suggest potential reliance on national or international support. The unanimous endorsement of the Nepal Army for site security reflects a high level of trust in the military to protect this strategically significant resource. The study reveals a strong local opposition to foreign involvement. Although there is significant interest in resource extraction for economic benefit, with 23 participants open to selling under certain conditions, participants emphasize the need for equitable benefit-sharing and responsible governance. Applying Elite Theory, Social Conflict Theory, Community Based Natural Resource Management System, and Dependency Theory, the study highlights the intricate balance required to manage Upper Mustang's uranium while addressing local needs, national interests, and geopolitical sensitivities.

Keywords: Upper Mustang, Uranium, Nepal, Hazard, Utilization

1.0 Introduction

Uranium is the most atomically unstable, naturally occurring radioactive heavy metal holding a pivotal role in global geopolitics. It is the most well-known and widely used actinide element, primarily due to its role in nuclear fuel processing. It is a crucial raw material for the nuclear industry (Li et al., 2024). Remarkable progress in uranium geology research supports sustainability in nuclear energy development and efficient uranium resource management (Zhao & Liu, 2024). A small quantity can generate energy for millions, yet its dual use in nuclear power and weapons presents both transformative and catastrophic potential. The exploitation of uranium has been at the centre of conflicts, particularly in regions like Mustang, Nepal, where its discovery has prompted political and economic interests. Uranium is primarily utilized in the nuclear fuel cycle, an industrial process that encompasses various steps to generate electricity (Costa et al., 2022).

Uranium-235, the only naturally occurring fissile isotope, is critical in both nuclear reactors and weapons. It requires enrichment due to its scarcity in nature. Meanwhile, Uranium-238,

though non-fissile in its natural state, can be transmuted into plutonium-239 in reactors, contributing to its strategic importance (Berkeley, 2007). Uranium-233, another fissile isotope, can be produced from natural thorium and is also used in nuclear technology. Uranium has also been employed in various industries, including military applications such as kinetic energy penetrators and armour plating (Emsley, 2001). Additionally, it is used in producing uranium glass, which fluoresces under ultraviolet light.

Uranium demand is shaped by a complex interplay of factors, including politics, population growth, technological advancements, development, and the clean energy movement. The global uranium production industry is facing a critical juncture (IAEA; OECD & DIAMO, 2005). Resource scarcity often intensifies power struggles, as suggested by the scarcity hypothesis, which posits that individuals gain power when they control high-demand, hard-to-obtain resources. However, this power is contingent on the resource's value within a given relationship. Uranium is primarily utilized in the nuclear fuel cycle, an industrial process that encompasses various steps to generate electricity.

This study focuses on the power dynamics and political struggles surrounding uranium deposits in Upper Mustang, Nepal, particularly in Lo-Manthang, a municipality bordering Tibet. Despite the confirmed presence of uranium (Aryal, 2021), its extraction and purification remain expensive, and the politics surrounding its use are complex. Historically, conflicts over natural resources, including uranium, have shaped global politics. For instance, countries like Sierra Leone, Congo, and Angola have experienced civil wars driven by control over valuable minerals such as diamonds (Thomas, 1999). The study aims to investigate the specific conditions of uranium in Upper Mustang and explore the political and power-related issues linked to its utilization.

Understanding the politics of uranium in Mustang is crucial for local and national governance, especially given its proximity to the Nepal-China border. Uranium's strategic importance makes it a potential source of conflict or cooperation. There are at least four markets in the nuclear fuel cycle to consider: uranium mining and milling, conversion, enrichment, and nuclear fuel fabrication. These markets are dominated by firms such as the United States Enrichment Corporation, TENEX/Rosatom (Russia), Eurodif/Areva (France), and Urenco (operating in Germany, The Netherlands, and the United Kingdom) (Emsley, 2001).

This study revises and addresses the shortcomings in analysis, methodological clarity, and interpretation found in Aryal's (2021) previous study. The 21st century presents the challenge of managing uranium's impact through global cooperation, particularly in disarmament and nuclear power regulation (Al-Sayed, 2023). While studies have explored the political implications of resources like water and forests in Nepal (Sapkota, 2023), there is a research gap in addressing uranium amidst the country's diverse geography, ecology, and socio-economic complexities (Aryal, 2021). Most existing research discusses the equitable utilization of natural resources to mitigate conflict. This study seeks to fill that gap by investigating the political dynamics of uranium in Mustang, Nepal, where stakeholders from local to international levels have vested interests.

This research aims to contribute to the broader understanding of natural resource politics in Nepal and offers insights into future conflicts arising from resource management. As no research has yet explored the political dimensions of uranium in Nepal, this study breaks new ground and helps link conflicts over natural resources with broader political issues, providing a foundation for future studies.

2.0 Methodology

This study employs a descriptive qualitative research design, utilizing narrative interpretation.

2.1 Study Area

The research was conducted in the Lo-Manthang Rural Municipality, where the uranium deposit was confirmed by the Department of Mines and Geology in 2018. Lo-Manthang is a historically and culturally rich area known for its Tibetan-influenced traditions. Established as a Mustang district in 1951, it played a significant role during the Khampa, the area was involved in a guerrilla movement in 1959 and was declared a restricted zone until 1992, when it was partially reopened for tourism (Khattri & Pandey, 2021).

The region's economy has shifted from agriculture and livestock to tourism, particularly with the growth of hospitality businesses. Lobas, the indigenous people, still rely on farming, despite harsh soil conditions, and use livestock such as yaks for sustenance. However, tourism and trade have become the primary sources of income (Khattri, 2023).

Lo-Manthang also faces demographic challenges due to youth migration, with many of the younger, educated population settling abroad, leaving an aging population behind. Despite this, the village maintains strong cultural traditions, including unique practices around death rituals and ceremonies, and the majority of the population communicates in Tibetan. As Lo-Manthang modernizes with improved infrastructure, access to mobile networks, and solar energy, it remains a blend of tradition and transition, preserving its historical roots while facing the demands of modernity.

2.2 Sampling and Sample Size

A purposive convenient sampling was used where a total of 32 residents participated in the semi-structured interview. The information saturation method was used. A guideline for interview was constructed and reviewed by experts for feedback and refinement. These guidelines allowed probing in need. An In-depth interview was conducted as per convenience of participants in private setting. The responses were recorded by note taking process. These responses were coded (as Participant 1, Participant 2, …), categorized and themes were generated through open coding process developing a coding and categorizing strategy. Through this process, broader 10 themes were identified. MAXQDA Software was used to manage, analyze data, and to generate key themes.

2.3 Validity, Reliability and Ethical Consideration

The validity of the guidelines is ensured through the expert judgement and feedback (Guillot et al., 2022). Since the study aimed to explore the power struggle associated to the natural uranium resource, the consistency in responses and information across interviews suggest that the information represent the constructs that research is investigating. Furthermore, member checking was conducted.

The purpose of the study was elaborated/informed before the interview. A written consent was not possible in all cases due to the illiteracy of participants; however, a verbal consent was taken before interview (Manti & Licari, 2018). The overall process was bounded by the statistical act of Nepal 2015 BS. Neutrality was maintained as well as human right was considered during the whole data collection and analysis process.

2.4 Theoretical Framework

While many models focus on economic or managerial perspectives; such as cost-benefit analysis, market demands, or resource management, very few address the role of power and politics (Aysan et al., 2023). Theoretical perspective such as Elite Theory, Social Conflict Theory, Community-Based Natural Resource Management Systems (CBNRMS), and Dependency Theory, provide fragmented and sometimes contradictory perspectives (Adeyanju et al., 2021). This study discusses the relevancy of these models to natural resource management, with a particular focus on uranium extraction in Upper Mustang.

2.4.1 Elite Theory

Elite theory states that the power resides within a small, concentrated group of socially and economically powerful individuals often referred as elites who hold significant influence over political and economic decisions. These elites, often members of the upper class, exert their power through corporate, governmental, and policy level. They maintain control over crucial resources, while the majority, or non-elites, are often powerless in such decision-making processes (Robert, 1977; Bottomore, 1993; Putnam, 1977).

This theory explains that elites shape societal outcomes, particularly through their ability to navigate institutional power structures. Italian scholars Vilfredo Pareto and Gaetano Mosca added psychological and sociological dimensions to the theory, highlighting that elites are superior in intellect, skills, and capabilities, and they often circulate within governing and non-governing positions (Wright, 1956). In the particular context of uranium utilization in Upper Mustang, elite theory suggests that decisions regarding resource extraction and management will rest with those in power: whether local elites, providence and national governments, or international bodies dominance with economic, political and diplomatic power.

2.4.2 Social Conflict Theory

Social Conflict Theory, derived from Marxism, emphasizes the inherent conflict between different social classes, particularly regarding access to scarce resources. This theory suggests that the upper class (or ruling class) seeks to maintain its position by controlling resources like natural resources, while the lower class struggles for access to those same resources (Engels & Marx, 1848; Marx, 1911; 1971). The higher class and elites use political and legal institutions to secure their dominance and limit resource access to the lower class.

In the case of uranium resources, Social Conflict Theory argues that the economically and politically dominant class whether at the local, national, or international level will likely secure control over these resources. This model suggests powerful actors, including national governments or multinational corporations, could exploit natural resources at the expense of less privileged communities, such as those in Upper Mustang (Haralambos, 1995; Marx, 1971; Banks, 1971).

2.4.3 Community-Based Natural Resource Management System (CBNRMS)

CBNRMS promotes the management of natural resources by local communities, emphasizing community development, local governance, and the equitable distribution of resource benefits. While CBNRMS has been a popular model for managing communal resources such as forests or wildlife, it faces criticism for its limited success in more complex resource management scenarios, particularly when local communities lack the technical or financial capacity to manage resources like uranium (Fabricius et al., 2001; Brosius et al., 1998).

In the case of Upper Mustang, where uranium extraction requires sophisticated technology and expertise, CBNRMS may fall short. Although the model advocates for equal participation and benefit-sharing, the local community may lack the necessary tools and knowledge to manage uranium extraction effectively, potentially leaving room for external actors to take control.

2.4.4 Dependency Theory

Dependency Theory, developed by Raul Prebisch and Hans Singer, explains the unequal power dynamics between developed and developing countries. According to this theory, resources flow from less developed (peripheral) nations to more developed (core) nations, perpetuating the wealth and dominance of the latter at the expense of the former (Sunkel, 1969).

Applied to the context of uranium in Upper Mustang, Dependency Theory suggests that Nepal may be unable to fully capitalize on its uranium resources due to its economic limitations and lack of infrastructure. As a result, richer neighbours or private corporations with the necessary technological and financial capabilities could end up benefiting more from these resources, leaving Nepal in a dependent position (Santos, 1971).

3.0 Results

The data collected from In-depth interviews provides valuable insights into the level of interest in uranium, perceptions about key stakeholders, security concerns, and attitudes toward ownership and benefit-sharing. This analysis is structured around various themes that emerged from the data and framed within relevant theoretical frameworks.

3.1 Demographic Information of the participants

The demographic profile of the 32 respondents (see Table 1) represents a relatively balanced gender distribution, with 53.13% male and 46.88% female participants. Most respondents were middle-aged, with the largest proportions falling between 41–50 years (28.13%) and 51–60 years (25.00%), indicating that the sample largely comprised individuals likely to be active in community decision-making. Educational attainment varied, though a significant portion—31.25%—were illiterate, while 28.13% had primary education and only 12.50% had reached the university level, highlighting educational disparities that may affect awareness of complex issues like uranium governance. In terms of occupation, household work (28.13%) and agriculture (21.88%) were most common, followed by socio-political engagement (18.75%), reflecting both traditional roles and civic involvement. The diversity in background offers important context for interpreting participants' perspectives, grounded in lived experience and local realities.

Table 1: Demographic Profile of Respondents

Variable	Category	Frequency	Percentage (%)
Gender	Male	17	53.13
	Female	15	46.88
Age Group	11–20	1	3.13
	21–30	7	21.88
	31–40	4	12.50
	41–50	9	28.13
	51–60	8	25.00
	61–70	3	9.38
Education Level	Illiterate	10	31.25
	Literate / Primary	9	28.13
	Secondary	3	9.38
	Higher Secondary	6	18.75
	University Level	4	12.50
Occupation	Agriculture	7	21.88
	Hotel/Motel	2	6.25
	Household Work	9	28.13
	Socio-political Engagement	6	18.75
	Trade/Business	2	6.25
	Self-Employed (e.g., Handcraft)	2	6.25
	Unemployed	2	6.25
	Employed (Job)	2	6.25

Source: *Field Work, 2019 (n = 32)*

3.2 Interest in the Available Uranium

The data reveals a significant interest in the natural uranium resources available in Upper Mustang. Out of total participants, 21 stated they were "Very interested," 8 expressed that they were "Somewhat interested" while 2 marked "Not very interested" and 1 marked "Not at all interested" This demonstrates a high level of awareness and curiosity about the uranium deposits, reflecting the resource's perceived economic and strategic importance.

3.3 Important Stakeholders in Uranium Management

The majority of participants (29 out of 32) identified local government as the most important stakeholder for managing and utilizing the natural uranium resource in Upper Mustang. This overwhelming preference for local governance reflects a broader desire for localized control over natural resources, perhaps due to concerns that higher levels of government might not prioritize local interests. Only one participant supported provincial government control while two were in favour of the central government.

This finding is consistent with Elite Theory. The preference for local governance suggests that participants view the local government as more attuned to their needs and interests compared to distant provincial or national government structure. Furthermore, participants perceived that they will be benefitted more if the resource is managed by local authorities rather than higher levels of governments, which could divert resources or profits to other regions.

Local stakeholders also expressed concerns about potential external influence, particularly from international actors. In line with Social Conflict Theory (Marx & Engels, 1848), there is an underlying tension between local communities and broader governmental or international powers, who are perceived as seeking to exploit local resources for their own benefit. This tension highlights the power struggles that can emerge when valuable resources like uranium are at stake, with different groups vying for control and influence.

3.4 Perception on Sharing Equal Ownership and Benefits with all Governments

The data indicates a reluctance to share ownership and benefits equally among the local, provincial, and central governments. A total of 18 participants opposed equal sharing, while only one participant supported it unequivocally. This suggests a lack of confidence in the capacity of higher levels of government to manage the uranium resource in a way that would fairly distribute benefits to the local community. Some participants show that they will accept the central governments order in certain terms and condition like;

> We haven't received any kind of official letter from the department and ministry. If government decides to dig it up and proceed, we will accept in certain terms and conditions. Like, the people's health should not be affected and the settlement will not be evaporated in any condition (Participant 7).

The opposition to equal sharing may stem from concerns about corruption, mismanagement, or a perception that the state and central governments would prioritize national or political interests over local well-being. "We will welcome if government decide to take advantage from natural resources. But we have to care the health of all locals. Local as well as overall nation should take benefit from it" (Participant 8). Theoretical insights from Elite Theory further explain this reluctance, as elites at the state and central levels are often perceived as controlling resources for their own gain, with limited accountability to local populations (Bottomore, 1993).

This finding also reflects a deeper desire for local empowerment and control over valuable resources, which is often a key aspect of Community-Based Natural Resource Management Systems (CBNRMS). However, the complexity of uranium extraction, including the need for advanced technology and safety measures, may challenge the feasibility of fully localizing control over this resource.

3.5 Perceptions on Allowing International Superpowers to Utilize Uranium

The responses revealed significant opposition to allowing international superpowers to utilize Upper Mustang's uranium resources. Thirteen participants opposed the idea like ("No probably"), and nine were strongly against it ("No definitely not"). Only 8 participants (25%) indicated conditional or definite support — 7 "Yes probably", 1 "Yes definitely" and 2 participants marked "Don't know". This reflects a strong sense of sovereignty and resistance to foreign interest.

This aligns with Dependency Theory (Prebisch, 1950), which suggests that developing countries often become dependent on more developed nations when they allow external powers to control or utilize their natural resources. In the context of Upper Mustang, local participants appear to fear that international involvement in uranium mining could lead to a loss of local control, with foreign powers reaping most of the benefits while local communities bear the environmental or social costs.

Additionally, participants expressed concerns about foreign influence in the region, particularly from neighbouring China. Local stakeholders are wary of the potential for geopolitical manoeuvrings over the uranium resource, as indicated in interviews. This highlights the broader geopolitical implications of uranium mining in a strategically located area like Mustang, where global powers may seek to exert influence.

3.6 Perception on Security of the Uranium Ore Area

There was unanimous agreement among participants that the Nepal Army should provide security for the uranium mining area. This reflects a strong trust in the national military to safeguard such a critical and sensitive resource, particularly given the potential national security implications of uranium extraction.

> We should declare the Uranium Mine area as a restricted area till Government of Nepal become capable to deal with it with proper law and nuclear policy. We have to give full responsibility of security to Nepal Army (Participant 6).

The preference for military oversight aligns with Elite Theory, which posits that elites often rely on institutional control such as the military to maintain order and protect key assets. In the case of uranium, which has both economic and strategic value, participants likely view the army as a neutral and capable entity that can prevent foreign interference or unauthorized access to the resource.

> "The Nepal Police post is situated 20 kilometers inside from the Nepal–China border, and currently, no one is monitoring border activities. So, security should be handed over to the Nepal Army, as valuable goods are vanishing day by day." (Participant 1)

This finding also underscores concerns about the security of the Korala Border area, as raised by participants. The proximity to China and the perceived lack of adequate border control contribute to local fears about unauthorized access to uranium and other valuable goods. The demand for Nepal Army involvement reflects a desire to ensure that uranium remains a national asset, protected from both domestic and international threats.

3.7 Perception on Ownership and Benefit Sharing with International Superpowers

While most participants were clearly against the idea of involving international superpowers in the ownership and benefit sharing of natural uranium in the Mustang region, some offered a more nuanced view, 22 out of 32 participants opposed international involvement, 13 responded "No probably" and 9 "No definitely not"—highlighting widespread concern and mistrust toward foreign influence. However, 7 participants indicated some level of support ("Yes probably") and 1 responded with strong support ("Yes definitely"), suggesting that under certain conditions, collaboration with international actors might be considered acceptable. Additionally, 2 respondents remained undecided. This overall pattern reveals a strong local preference for national or regional control, reflecting their concerns over sovereignty, resource security, and geopolitical sensitivity, while also signaling that strategic, conditional partnerships may not be entirely ruled out.

> This is the serious matter which directly deals with public health, multinational trade and national economy. I think the central government will conduct everything needed because it comes under the ministry of industry, commerce and supply. In my opinion, it is better to sell to third nation by process of global bid. But the public health is important (Participant 5).

This conditional support reflects a pragmatic approach to resource management, where foreign expertise or investment could be seen as beneficial if it aligns with local interests. Other participants noted that:

> First of all, we have to find out its volume, and quality. After that, if government of Nepal is capable to purify it, we should not leave it for others, otherwise by the process of global bidding, we could give other to proceed. But locals must be in the center of benefit. None of harm is acceptable (Participant 2).

The key concern, as expressed by several participants, is that any arrangement with international superpowers must prioritize local benefits and safeguard public health. This view somehow aligns with the CBNRMS model through cost-benefit lens. which emphasizes equitable benefit-sharing and community participation in resource management.

3.8 Attention Paid by Western Superpowers to Uranium of Mustang

There is a strong perception that Western superpowers are paying significant attention to the uranium resource in Upper Mustang, with 29 out of 32 participants agreeing that external actors are highly interested in the region. This reflects local awareness of the geopolitical importance of uranium, particularly as a resource that could attract international interest for its potential applications in energy production and national security.

> We cannot enter China, but Chinese vehicle easily enter up to Tsarang (31 km far from boarder) and distribute their gifts/support. The Korala boarder is closed now, but the foreigner's visiting boarder by reserving Jeep is quite common. Most of the ambassadors and diplomats in Nepal have visited Lo-Manthang. Foreign agencies are supporting on reconstruction, electricity and telecommunication. We believe in the principle that locals first in utilization of natural resources (Participant 1).

Such attention from global powers can be explained by Elite Theory, which suggests that global elites, represented by powerful nations or multinational corporations seek to control valuable resources like uranium to maintain or expand their geopolitical influence. Local participants were found to be aware of these dynamics and recognize the potential for international competition over Mustang's uranium deposits.

3.9 Perception on Ownership of Local Government

A strong collective sentiment emerged among participants around the idea that "uranium belongs to the local government and local people only." Of the 32 participants, 19 strongly agreed and 7 agreed with this view, which represents a significant endorsement. Just one participant expressed neutrality, while five disagreed, and none strongly disagreed. These responses go beyond simple opinions—they reflect heartfelt convictions about self-determination, a deep sense of responsibility for local stewardship, and a strong belief in the community's right to manage and protect its own natural resources.

> There has been no discussion so far regarding the uranium resource, its utilization, or its trade. The state government should adopt the necessary technology and equipment for uranium purification, and the overall process should be managed by the provincial government rather than the central government. (Participant 4)

This suggests that while local control is desirable, there is also recognition that higher levels of government may be better equipped to manage such a complex and strategically important resource. While local participants want to benefit from the resource, they may also understand that full local management may not be feasible without significant external support.

3.10 The Need for Government Effort in Uranium Management

The overwhelming majority of participants (29 out of 32) believe that the government needs to put significant effort into managing the uranium resource. This indicates a strong expectation that the government whether at the local, provincial, or national level must take an active role in ensuring that the resource is managed transparently and effectively.

> We should dig it up and purify. This is the property of whole nation. We should not let it for foreign. Otherwise, we leave it till we became capable to properly manage it. If it has health hazard government have to plan immediately (Participant 3).

This highlight concerns about governance, as participants likely fear that without proper oversight, the resource could be mismanaged or exploited by external actors. It also underscores the need for the government to develop a comprehensive policy framework for uranium mining, including safety measures, environmental protection, and equitable benefit-sharing.

3.11 Perception on Selling Uranium to Other Countries

Most participants (23 out of 32) agreed that it would be beneficial to sell uranium to other countries, provided that appropriate terms and conditions are met. This pragmatic view reflects an understanding that foreign investment and expertise may be necessary to fully exploit the resource, particularly given the technical challenges of uranium extraction and processing.

> Geographically, China is near to the resource. I think, if China gives interest, we should consider them. Otherwise just leave it as it is till Nepal Government becomes capable to manage it (P2).

However, participants also expressed concerns about ensuring that the sale of uranium benefits local communities and does not compromise national sovereignty. "After being able to deal with it or making clear national uranium policy, we could sell the uranium ore to international superpower to gain benefit from it but locals should be in center of benefit" (Participant 6). This view aligns with Dependency Theory, which warns against becoming overly reliant on foreign powers for economic development. While participants are open to selling uranium, they want to ensure that the transaction is conducted in a way that preserves local control and maximizes national benefits.

4.0 Discussions

This study offers a detailed examination of struggle regarding the utilization of uranium resources in Upper Mustang, Nepal. The data highlights substantial interest in uranium's strategic value, widespread concerns about control and distribution, and clear preferences regarding the role of various stakeholders, including local, national, and international entities. By analysing responses across ten themes, this discussion elaborates on the tensions that arise from differing stakeholder interests, drawing on theoretical frameworks such as Dependency Theory, Elite Theory, Social Conflict Theory, and Community-Based Natural Resource Management Systems (CBNRMS).

4.1 Importance of Preserving Uranium for the Future

The strong consensus on the importance of preserving uranium for future use aligns with a strategic view of uranium as a resource that should not be hastily exploited but rather conserved for future generations, potentially as an energy source or for the nation. The Dependency Theory (Prebisch, 1950) is relevant here, as it posits that resource-rich yet economically developing nations like Nepal often experience resource extraction that benefits wealthier countries disproportionately. The participants' desire to preserve uranium reflects an awareness of this dynamic, as well as a protective stance toward national resources to prevent potential exploitation by foreign powers.

This prioritization of preservation also underlines a commitment to ensuring that uranium contributes to long-term energy security and environmental sustainability. Local participants may fear that without robust preservation policies, uranium could be prematurely utilized by powerful nations or private companies, leaving little benefit for future Nepali generations. As such, preservation aligns not only with economic and strategic priorities but also with social responsibility, where communities wish to safeguard a critical resource for their descendants.

4.2 Identification of Key Stakeholders in Uranium Management

In terms of stakeholder roles, a strong preference for local control emerged as the most suitable authority for uranium management. This distribution indicates a clear preference for decentralized, community-based management of natural resources, which participants likely see as more aligned with local needs and priorities. The desire for local governance aligns well with the principles of CBNRMS (Fabricius et al., 2001), which emphasizes community participation, equitable benefit-sharing, and sustainable management.

The preference for local governance also reflects mistrust toward higher levels of government, which some participants perceive as being less attuned to community concerns or more prone to corruption and mismanagement. This suggests a disconnect between local communities and distant state or national bodies, with participants favouring local authorities whom they view as more accountable. However, while CBNRMS has been effective in managing resources like forests and wildlife, the technical and financial demands of uranium mining may require national or international support, indicating a potential tension between local control and practical feasibility in resource management.

4.3 Security for the Uranium Mining Area

Regarding the security of uranium mining areas, participants showed unanimous support (32 out of 32) for assigning this responsibility to the Nepal Army rather than another agency. This consensus reflects strong public trust in the military to safeguard strategically important resources, especially given the sensitive geopolitical location of Upper Mustang near international borders.

From a security perspective, uranium's potential applications in energy generation and military technology make it an asset that requires strict control to prevent external exploitation. The

local preference for a military presence likely stems from a broader concern over national security, as well as the perception that the Nepal Army, with its centralized command and strategic resources, is best equipped to manage the risk of external interference. This decision underscores the view that uranium management should not only be economically beneficial but also tightly regulated to ensure national security and prevent misuse.

4.4 Discrepancy Between Interest and Public Advocacy

Despite high interest and recognition of uranium's importance, very less engagement (only 7 participants) in public advocacy reflects the limited platforms for public expression or a sense that individual voices may not impact governmental decision-making. This gap between interest and action reflects a possible power imbalance, where local communities feel disempowered by elite-dominated decision-making structures. Social Conflict Theory (Marx & Engels, 1848) explains this dynamic, positing that resource allocation often favours elites, leaving lower social classes with fewer opportunities to influence outcomes.

The lack of active advocacy suggest disenfranchisement among local populations, who perceive decisions on resource management to be centralized within national elites or foreign actors, thereby minimizing local input. This dynamic reveals a structural challenge in resource governance, where individuals feel constrained in their ability to impact policies related to uranium despite strong interest and concern. Increasing channels for public engagement and ensuring community representation in decision-making processes may help mitigate this discrepancy and align actions with the community's interests.

4.5 Opposition to Equal Ownership and Benefit Sharing Among Government Levels

The findings indicate that majority of participants (18 out of 32) oppose the idea of dividing ownership and benefits equally among local, provincial, and central governments. This preference for localized control reflects a lack of confidence in the capacity of the provincial or central government to manage the resource equitably, with concerns that higher levels of government may prioritize their interests over local needs. This perspective is consistent with Elite Theory (Bottomore, 1993).

The local preference for control suggests a desire to ensure that benefits derived from uranium are directed toward the community rather than being absorbed by distant government bodies. Participants likely fear that centralization could result in corruption or misallocation of resources, further depriving the local population from potential benefits. This sentiment underscores the importance of establishing policies that safeguard local interests while ensuring transparent management and equitable benefit distribution.

4.6 Reluctance to Involve International Superpowers in Uranium Ownership

The participants' resistance to involving foreign powers in uranium management reflects deep-seated concerns about resource exploitation, national sovereignty, and inequitable benefit-sharing. This sentiment aligns with Dependency Theory (Prebisch, 1950), which argues that less developed nations are structurally positioned in ways that make them vulnerable to economic domination and resource extraction by more powerful countries. Their perspectives reflect more than just political caution—they also express a strong aspiration for self-governance, equitable control, and a fair stake in the management of strategic national resources.

Participants appear to fear that involving international actors could lead to uranium extraction primarily benefiting foreign powers, leaving little economic or environmental gain for Nepal. This opposition reinforces a nationalistic approach to resource management, where uranium is viewed as a strategic asset that should remain under national control to ensure local benefits.

4.7 Perception of Western Superpower Attention on Uranium

Most of the participants (29 out of 32) perceive the existence of significant interest from Western superpowers regarding uranium in Upper Mustang, underscoring the geopolitical significance of this resource. Given uranium's potential for both energy production and military applications, participants view Western interest as indicative of the resource's dual-use potential. Elite Theory provides insight into this perception, positing that powerful global elites represented by advanced nuclear nations and multinational corporations seek to control high-value resources that can shape international security dynamics (Wright, 1956).

The heightened attention from Western powers emphasizes uranium's importance on a global scale and highlights the need for Nepal to carefully navigate its relationships with these international actors. The local perception that Western nations are interested in Nepal's uranium suggests an awareness of potential foreign interference, and this reinforces the local preference for national control to prevent foreign entities from dominating the resource.

4.8 Demand for Increased Government Effort in Uranium Management

A strong majority of participants (29 out of 32) believe that the government should invest more effort in uranium management, reflecting expectations for proactive involvement and accountability. This response indicates public concern over current governance efforts, suggesting that existing measures are seen as inadequate. The demand for greater government engagement aligns with the themes in Social Conflict Theory, where local communities (lower classes) feel that political elites (upper classes) are not sufficiently securing their interests.

The desire for increased governmental effort implies that participants expect the authorities to take steps to protect, manage, and utilize uranium in a way that benefits Nepal as a whole. This expectation underscores the need for transparent policies and regulatory frameworks that can address local concerns while balancing national priorities. Additionally, the finding highlights public support for government accountability and responsibility in managing strategic resources.

4.9 Division Over Local Government Ownership of Uranium

Participants were split on whether uranium should be exclusively owned by the local government. This division reflects a nuanced perspective: while local control is seen as favourable for immediate community benefits, participants also recognize the challenges of managing a complex resource like uranium, which may require higher-level oversight and technical resources.

The reluctance to fully endorse local ownership can be explained by CBNRMS principles, which support local control but acknowledge that certain resources may necessitate external support for effective management (Fabricius et al., 2001). Given uranium's technical requirements, participants also accepted that local management could be limited without state or international assistance, despite the desire for localized benefits.

4.10 Pragmatic View on Selling Uranium to Western Countries

A majority of participants (23 out of 32) seems positive in selling uranium to Western countries under certain conditions, revealing a pragmatic approach to resource management. This viewpoint suggests that participants see the economic advantages of selling uranium as a potential means to generate revenue and acquire technical expertise. However, concerns remain regarding utilization, with a small number of participants expressing neutrality or opposition, likely due to worries about sovereignty and dependency. This pragmatic stance aligns with Dependency Theory. While participants recognize the immediate financial benefits of selling uranium, there are also concerns about maintaining control over the resource and ensuring that any international deals do not undermine national interests.

4.11 Power Struggle Between Local, National, and International Stakeholders

The study findings highlight a complex power struggle over uranium management, involving local, national, and international interests. Elite Theory explains this dynamic by emphasizing that decision-making power often rests with a select few who wield influence over critical resources (Robert, 1977). In Upper Mustang, local authorities are viewed as crucial stakeholders, but they face competition from national elites and foreign powers who may have their own economic or geopolitical agendas. Similarly, Social Conflict Theory highlights the tensions between different classes in resource management (Marx & Engels, 1848; 1971). This ongoing power struggle underscores the challenges of balancing local autonomy with national and international interests in managing a high-stakes resource like uranium.

The findings underscore the need for a nuanced and inclusive approach to uranium management, balancing local interests with broader national and global considerations. The application of Elite Theory, Social Conflict Theory, Dependency Theory, and CBNRMS sheds light on the competing dynamics that shape resource governance in Upper Mustang, emphasizing the importance of local participation, transparent policies, and cautious engagement with international actors.

5.0 Conclusion

This study examines the power struggle and tensions surrounding the natural uranium resource in Upper Mustang, Nepal. Through the In-depth interviews and lens of Elite Theory, Social Conflict Theory, CBNRMS, and Dependency Theory, the research provides a comprehensive understanding of the political, social, and economic interests at play among local, national, and international stakeholders. Local participants show substantial interest in uranium, not only for potential economic gain but also as a strategic asset. Majority of the participants emphasize the importance of preserving this resource noting it as "very important". Which aligns with Dependency Theory, where participants fear that without protective measures, uranium could be exploited by foreign interests, leaving little benefit for Nepal. There is a clear consensus toward local control identifying the local government as the primary stakeholder. This reflects a strong alignment with CBNRMS principles, as local governance is seen as more responsive to community needs.

Although only 29 out of 32 participants initially expressed interest in discussions about uranium, all 32 later agreed that the Nepal Army should be entrusted with its security. This unanimous response speaks volumes about the collective confidence placed in the military as a trusted institution capable of protecting resources of national and strategic significance. Even among those who were less engaged in broader conversations, the consensus on security highlights a shared sense of urgency and responsibility. It suggests that, for many, ensuring safety and control over uranium is a baseline concern that overrides other political or administrative debates. The strong alignment around military involvement reflects not only perceived institutional effectiveness but also the belief that some matters—like national security—require clear and unified action. Further, findings reveal a reluctance to share ownership and benefits equally across governmental levels indicating the perception that central government as an elite entity that could dominate decision-making, side-lining local interests.

International involvement is another contentious issue, with majority of participants opposing the involvement of foreign powers in uranium management. Participants expressed concern over the potential exploitation of Nepal's uranium resources by international superpowers, fearing it could undermine national sovereignty and hinder equitable benefit-sharing. They also highlighted increasing foreign interest in Mustang's uranium, reflecting its geopolitical significance, particularly due to uranium's dual-use potential in both energy and defense sectors.

Participants call for stronger government engagement in uranium management, reflecting broader expectation for transparent, responsible governance to ensure uranium's benefits are equitably distributed. Yet, opinions are divided regarding exclusive local ownership; while local control is favoured, 13 participants remain neutral on this issue, likely recognizing the technical demands of uranium extraction that may necessitate national or even international support. Interestingly, a pragmatic view emerges regarding selling uranium to foreign powers, with 23 participants supporting the idea under specific conditions. While this could generate revenue and bring in foreign expertise, Dependency Theory cautions against over-reliance on foreign economies, as this could shift control away from Nepal.

Ultimately, this study reveals a multifaceted power dynamic over the uranium, driven by competing local, national, and international interests. Participants clearly express a desire for local control, but they also recognize the challenges posed by uranium's complexity and geopolitical appeal. Moving forward, it is essential for the Nepalese government to establish a clear, inclusive uranium management policy that balances local, national, and international considerations. Policy prioritizing equitable benefit-sharing, stringent security measures, and responsible resource utilization to prevent exploitation and maximize uranium's contribution to Nepal's development and sovereignty is urgent.

References

Adeyanju, S., O'Connor, A., Addoah, T., Bayala, E., Djoudi, H., Moombe, K., Reed, J., Ros-Tonen, M., Siangulube, F., Sikanwe, A., & Sunderland, T. (2021). Learning from community-based natural resource management (CBNRM) in Ghana and Zambia: Lessons for integrated landscape approaches. *International Forestry Review, 23*(3), 1-25.

Al-Sayed, S., Glaser, A., & Mian, Z. (2023). Societal verification of nuclear disarmament in the 21st century: A workshop report. *Journal for Peace and Nuclear Disarmament, 6*(2), 365–375. https://doi.org/10.1080/25751654.2023.2277421

Aryal, A. (2021). Power struggle for natural uranium of Himalaya near China border. *IRESPUB Journal of Humanities & Cultural Studies*, *1*(2), 64. https://shorturl.at/Wt1yi

Aysan, A. F., Bakkar, Y., Ul-Durar, S., & Kayani, U. N. (2023). Natural resources governance and conflicts: Retrospective analysis. *Resources Policy, 85*, 103942. https://doi.org/10.1016/j.resourpol.2023.103942

Banks, A. S. (1971). *Patterns of domestic conflict: 1919-1966* (Research Paper No. 7). Center for Comparative Political Research, State University of New York at Binghamton.

Berkeley, L. (2007, April 27). *WWW table of radioactive isotopes*. National Laboratory, US.

Bottomore, T. (1993). *Elites and society* (2nd ed.). Routledge.

Brosius, J., Peter, T., Lowenhaupt, A., & Charles, Z. (1998). Representing communities: Histories and politics of community-based natural resource management. *Society & Natural Resources, 11*(2), 157–168. https://doi.org/10.1080/08941929809381069

Costa Peluzo, B. M. T., & Kraka, E. (2022). Uranium: The nuclear fuel cycle and beyond. *International Journal of Molecular Sciences*, *23*(9), 4655. https://doi.org/10.3390/ijms23094655

Emsley, J. (2001). Uranium. In *Nature's building blocks: An A-to-Z guide to the elements* (pp. 476–482). Oxford University Press. https://doi.org/978-0-19-850340-8

Fabricius, C., Koch, E., & Magome, H. (2001). *Community wildlife management in southern Africa: Challenging the assumptions of Eden* (Evaluating Eden Discussion Paper No. 6). International Institute for Environment and Development.

Haralambos, H. (1995). *Sociology: Themes and perspectives*. Harper Collins.

International Atomic Energy Agency (IAEA), OECD Nuclear Energy Agency, & DIAMO State Owned Enterprise. (2005). *Recent developments in uranium exploration, production, and environmental issues: Proceedings of a technical meeting organized by the IAEA in cooperation with the OECD Nuclear Energy Agency and DIAMO State Owned Enterprise, held in Straz, Czech Republic, 6–8 September 2004*. International Atomic Energy Agency.

Khattri, M. B. (2023). The trans-himalayan livelihood: Opportunities and challenges in tourism development in upper Mustang, Nepal. *Journal of Tourism & Adventure*, *6*(1), 18–38. https://doi.org/10.3126/jota.v6i1.58560

Khattri, M. B., & Pandey, R. (2021). Agricultural adaptation to climate change in the trans-Himalaya: A study of the Loba community of Lo-Manthang, Upper Mustang, Nepal. *International Journal of Anthropology and Ethnology, 5*(1). https://doi.org/10.1186/s41257-020-00039-w

Li, X., Ning, X., & Li, Z. (2024). Global research trends of uranium-containing wastewater treatment based on bibliometric review. *Journal of Environmental Management, 354*(120310). https://doi.org/10.1016/j.jenvman.2024.120310

Marx, K. (1911). *A contribution to the critique of political economy.* C. H. Kerr.

Marx, K. (1971). Preface to *A contribution to the critique of political economy* (S. W. Ryazanskaya, Trans.; M. Dobb, Ed.). Lawrence & Wishart.

Marx, K., & Engels, F. (1962 [1848]). *Manifesto of the communist party.* International Publishers.

Prebisch, R. (1950). *The economic development of Latin America and its principal problems*. United Nations Department of Economic Affairs, Economic Commission for Latin America (ECLA). https://archivo.cepal.org/pdfs/cdPrebisch/002.pdf

Putnam, R. D. (1977). Elite transformation in advanced industrial societies: An empirical assessment of the theory of technocracy. *Comparative Political Studies, 10*(3), 383–411.

Santos, T. D. (1971). The structure of dependence. In K. T. Fann & D. C. Hodges (Eds.), *Readings in U.S. imperialism* (p. 226). Porter Sargent.

Sapkota, K. N. (2023). Natural resource conflict and resolution practice in Nepal. *RR Interdisciplinary Journal, 4*(4), 157–166.

Sunkel, O. (1969). National development policy and external dependence in Latin America. *The Journal of Development Studies, 6*(1), 23.

Thomas, F., & Homer, D. (1999). *Environment, scarcity, and violence.* Princeton University Press.

Wright Mills, C. (1956). *The power elite*. Oxford University Press.

Zhao, J., & Liu, C. (2024). Unlocking the microscale secrets: A comprehensive study on uranium occurrence and eco-friendly processing techniques in Lanhe granite-type uranium deposits, Northern Guangdong Province, China. *Minerals Engineering, 215*, 108817. https://doi.org/10.1016/j.mineng.2024.108817