GeoJournal
https://doi.org/10.1007/s10708-023-10926-2

International environmental policy processes that dispossessed developing societies of public land resources: A case study of Nepal

Bhubaneswor Dhakal · Kedar Nath Adhikari · Narendra Chand · Him Lal Shrestha · Anita Shrestha · Nischal Dhakal · Bikash Adhikari · Shyam Krishna Shrestha · Krishna Bahadur Karki · Padam Lal Bhandari

Accepted: 26 July 2023

Abstract Public lands including forests and community pastures are still crucial means of local livelihood, social security, and environmental conservation in many developing countries including Nepal. However, these resources are increasingly managed primarily to offset greenhouse gas emissions of developed countries. The new management has exacerbated many local problems: livelihood constriction, social crises, human casualties (deaths and serious injuries), biodiversity degradation, and water scarcity including cryosphere retreating. Drawing data from multiple sources, this study attempted to explain the international political objectives and processes that dispossessed developing societies of

B. Dhakal (✉)
Christchurch Health and Development Study, Department of Psychological Medicine, Christchurch School, University of Otago, and New Zealand Support for Development, Christchurch 8140, New Zealand
e-mail: bhubaneswordhakal@gmail.com; bhubaneswor.dhakal@otago.ac.nz

B. Dhakal
Support for Development (New Zealand), (A non-profit organization), Christchurch, New Zealand

K. N. Adhikari
Faculty of Science, IA Watson Grains Research Centre, University of Sydney, Narrabri, NSW, 2390, Australia
e-mail: kedar.adhikari@sydney.edu.au

N. Chand
Nepal Foresters' Association, Kathmandu 44600, Nepal
e-mail: Narendrachand@gmail.com

H. L. Shrestha
Kathmandu Forestry College, Kathmandu 44800, Nepal
e-mail: hlshrestha@gmail.com

A. Shrestha
Resources Nepal, Kathmandu 44600, Nepal
e-mail: anitaomshanti@gmail.com

N. Dhakal
Shrijalshil Samaj, Balithumbeshi, Sunderbazaar-8, Lamjung 36611, Nepal
e-mail: uniquenischal1@gmail.com

B. Adhikari
Institute of Forestry, Pokhara Campus, Tribhuvan University, Pokhara 33700, Nepal
e-mail: bikashnadhikari@gmail.com; bikash@iofpc.edu.np

S. K. Shrestha
Environment Rights Network, Kathmandu 44600, Nepal
e-mail: shyamk.stha@gmail.com

K. B. Karki
Nepal Agricultural Research Council, Khumaltar 44700, Nepal
e-mail: drkbkarki@gmail.com

P. L. Bhandari
Department of Agricultural Economics and Managemt, Agriculture and Forestry University (AFU) Rampur, Chitwan 42209, Nepal
e-mail: padam977@gmail.com

Published online: 04 October 2023

public land resources for the benefit of developed countries. It shows that representatives of the developed countries were proactively and strategically involved in agenda formation, solutions negotiations, and decision-making while developing international environmental policies, and succeeded to structure the policies for managing the resources of developing countries for the best benefit of their own countries. The developed countries provided funds and experts, as strategic tools, through international aid agencies to implement the policies of their interest in institutionally weak countries. In Nepal, the aid agencies influenced the thinking of the public and the decisions of the government and other stakeholders through a series of strategic measures. They propagandized false crises, worked with a coalition of powerful international agencies, offered free technical support, and changed national policies proactively to manage the land resources for achieving their missions. Active involvement in policy implementation also helped the agencies to monitor implementation hurdles and apply other tactics to resolve them. Lucrative flash incentives were provided to motivate and get the support of communities, powerful stakeholders, and politicians to implement the policies. Psychosocial pressures were also applied to persuade local communities and their leaders for getting local cooperation in making and practicing new legal institutions (government authority rules or orders, user group rules, and forest management plans) that bind and control local communities for forest protection. The institutions obliged local communities to contribute free labor or cash for developing, modifying, and protecting the forests. These two levels of interventions led to the further development of reinforcing institutions, resource conditions, and social-ecological systems that secured benefits for developed countries and deprived local communities of power to control, produce and access the public land resources in their own backyard for years. This study also showed that international environmental policies and aid agencies have respectively served as institutional weapons and vehicles for materially and institutionally powerful countries to colonize the land resources of weaker countries, without using of physical coercion or deplyment of military forces.

Keywords Intervention-process · Land-grabbing · Institutionally-locked-in · Political-ecology · Retired-carbon-credit · Strategic-tactics

Introduction

People even from beyond local community and national boundaries have growing stakes in the management of public land resources. The growing stakes are mainly for economic, recreational, and environmental uses (Lambin & Meyfroidt, 2011). The products and services of the lands especially public forests and community pasturelands are still invaluable to secure the lives and livelihoods of some local communities including indigenous ethnic groups due to their unique social and geoecological positions and limited access to alternative means for their way of lifestyle and livelihood (Chao, 2012; Springer & Almeida, 2015). Unlike people of European and other developed countries, some communities privatized only a small portion of the lands and kept the rest of the land areas in absentee ownership for communal benefits due to their ethnic way of thinking and behaviors (Springer & Almeida, 2015). Other communities including mountain people also managed a large share of local land area under communal (public) ownership to ease adapting to harsh environmental conditions (Dhakal et al., 2022a). The communities require managing the resources to produce multipurpose products and services for meeting daily basic needs, maintaining a nature-based lifestyle, conserving ethnic cultures, and keeping up their ethnic existences with other communities (Springer & Almeida, 2015).

The land resources of developing countries have been increasingly managed for global environmental benefits since the 1970s (Arts et al., 2010; Bryant, 1998; Byron, 1997). International agencies did not disclose their hidden mission while making their interventions in resource management. They intervened in resource management in the name of different populist programs such as community or village forestry, collaborative forestry, and leasehold forestry. The intention of their interventions at least of carbon sequestration is disclosed. The international programs

are titled Reduced Emissions from Forest Degradation and Deforestation (REDD), and landscape-scale decarbonization (Aronson et al., 2020; Arts et al., 2010; CIFOR, 2014; GLF, 2014, 2015; UNCCD, 2022). The biodiversity sector-related agencies have still intervened in public resource management without disclosing the primary intention. They have used the populist agenda of biodiversity resource conservation. Recently they have declared the UN decade of ecological restoration and expansion of protected areas to 30% of national land territory by 2030 and half of the earth by 2050 (Osborne et al., 2021). Most of the new international land-use policies are implemented or targeted in developing countries. The Bonn Challenge, for example, targeted to afforest 100 million ha of grasslands in African countries by 2030 (Stanturf & Mansourian, 2020). The New York declaration has extended the ecological restoration target of 350 million ha (Deng et al., 2016). The ambitious program aimed to manage the land under naturally intact vegetation systems to offset the greenhouse gas (GHG) emissions of developed and other industrialized countries (Büscher et al., 2017b; Ellis & Mehrabi, 2019; UNCCD, 2022). Most of the forest development policies or programs substantially increased forest areas, stock, and carbon sequestration and reduced livestock number, the GHG emission source in developing countries (Dhakal et al., 2010; FAO, 2004, 2010; Gurung et al., 2009). Recent literature challenged the declared objective of the international agencies that those ecological restoration programs have rather exacerbated biodiversity degradation (Bond et al., 2019a; Kumar et al., 2020; Veldman et al., 2015, 2019). The hidden intention of the programs is to create more lands for carbon sequestration to offset GHG emissions from highly industrialized and other developed countries.

The current management of land resources has increased serious multi-dimensional problems in local communities. It has squeezed the resource-based economic activities, exacerbated local food insecurity, constricted livelihoods of disadvantaged social groups, spoiled centuries-old social-ecological systems, and increased human casualties (death and serious injuries), especially in Nepal (DNPWC, 2022; Chhetri et al., 2023; Dhakal et al., 2022a; Gurung et al., 2009; Poudel et al., 2015). The problems have multiplied many social crises. Growing local employment problems have made women more suffering from emotional stress, family isolation problems, and dependency on male income (Rai & Dangal, 2021). Many families of indigenous ethnic groups and other developing societies have been placed in the position of either getting suffered for generations or being extirpated from their homelands(Dhakal et al., 2022b; Springer & Almeida, 2015). The forest management for carbon sequestration has also played exacerbating roles in local biodiversity degradation, water scarcity including cryosphere retreating, and temperature and rainfall anomalies in the Himalayan region (Dhakal et al., 2022a; Gupta et al., 2013; Kang et al., 2020; Yang et al., 2022). Despite knowing the critical social and environmental impacts in local communities and having officially declared priority missions of helping institutionally weak communities, most international agencies (e.g.s the World Bank, ADB, FAO, UNDP, IUCN, WWF, and ICIMOD) have pushed the government and other stakeholders to manage the resources primarily for mitigating global climate changes (Aronson et al., 2020; Arts et al., 2010; Bryant, 1998; Byron, 1997; Dawson et al., 2018; Deng et al., 2016; Dhakal & Adhikari, 2022; Häberli, 2018; Howe et al., 2014; Rodríguez et al., 2006; Schaafsma & Bartkowski, 2021). The agencies have also got the full support or cooperation of government bureaucrats, academicians, mavens, and other stakeholders to manage the public land resources against the disadvantaged communities, local environment conservation, and holistic national securities (MoFSC, 2015a. Ojha et al., 2013; Rai et al. 2021, Shrestha & Dhakal, 2019; WWF et al., 2019). The secret of the success of those actors in managing the vital resources against the security of people in the host nation and for the benefit of distant societies is a serious subject for scholarly investigation.

Previous studies explained the processes and implications of private land grabbing or dispossession for food market control, biofuel production, and carbon forestry in Asia, Africa, and South American countries (Malkamäki et al., 2018; Parola, 2021; Semieniuk & Yakovenko, 2020; Sovacool et al., 2021). They explained mainly the issues of private land grabbing by multinational companies and developed countries (Busscher et al., 2020; Cabello

& Gilbertson, 2012; Malkamäki et al., 2018; Robertson & Pinstrup-Andersen, 2010; Tulone et al., 2022; Walker, 2006; Yang & He, 2021). Some recent studies explained that scientific realities and conditions of public land resources are misinterpreted to manage them for vested interest (Bond et al., 2019a; Kumar et al., 2020; Veldman et al., 2015, 2019). However, the above studies did not well-document global resource politics and approaches in succeeding to manage the public land resources of developing societies to benefit powerful societies for a long period. Our study aimed at addressing the knowledge gap with case studies of Nepal where international agencies have intervened in the management of natural forests and other public land resources to make environmental and recreational benefits for other countries since the 1970s (Aryal et al., 2021; Dhakal et al., 2022a; Heinen & Kattel, 1992; Ives & Messerli, 1989).

This study attempted to address the knowledge gap in political ecology literature by answering the following questions: What are international backgrounds to dispossess the developing societies of public lands? What are international politics and processes of grabbing public land resources of developing societies? What are the technicalities in international environmental policies that make the local community long-lastingly dispossessed of the land resource? What are the country-level tactical approaches of international agencies to manage land resources for global benefit? The contents of the study except the main sections are organized similarly to a common journal article. The main section accounts consecutively for international resources politics, intervention historical processes, land use technicalities for climate change mitigation, and the process of external interventions in managing the land resources of Nepal.

Literature review: theoretical underpinning

Many studies have explained the background of current international environmental policies and the roles of the active actors to make them endorsed in international policy forums. Semieniuk and Yakovenko (2020) stated that developed countries achieved a strong economic position, high income per capita, and better infrastructures with GHG emission-intensive activities. They have still attempted to protect the GHG-intensive activities for securing profitable economies and affluent lifestyles. One of the strategies to protect the economy is offsetting emissions from offshore sources, especially carbon sequestration and decarbonizing in developing countries (Christoff, 2008). Sovacool et al. (2021) stated that international decarbonization policies slow down or distort the economic development of developing countries and widen differences in wealth and income between powerful actors and resource-based communities, and also developed and developing countries. Some scholars even claimed that the current international initiative of land resource use for global environmental conservation is scientifically illogical and harmful to disadvantaged societies and local ecosystems (Bond et al., 2019a; Kumar et al., 2020; Veldman et al., 2015, 2019). The policies rather provide opportunities for culprits for continuing environmental harm (Büscher et al., 2017a; Ellis & Mehrabi, 2019). The international policies on carbon sequestration and decarbonizations in developing countries, however, are endorsed and enforced putting the distributive outcome issues aside (Häberli, 2018).

Some scholars explained that international policies are politically motivated. The policies are colonial in orientation and determined by international political processes involving unequal power actors (Cabello & Gilbertson, 2012). The policies are strategically structured to maintain the old supreme legacy of developed countries. Sovacool et al., (2021), stated that the resource dispossession associated with international policies is not a repercussion: accidental, unintentional, or unexpected case. They are the result of deliberated policy processes of powerful actors which are intended to achieve the best benefit by exploiting the resources of institutionally weak societies or nations. Sovacool et al. (2021) termed the current international policy of land use of developing countries for the benefit of developed countries as a process of economic dispossession. Kashwan et al., (2021a, 2021b) explained current global environmental policies led to militarized control of resources which reinforced the colonialism of powerful societies and the exclusion of weak societies. They called the international policy of community land use for international benefits is grabbing of commons and community dispossession whereas Cabello and Gilbertson (2012) called them "a colonial mechanism to enclose lands" (p 1). Literature followed the

political-ecology theory to explain land dispossession politics and problems (Constantin et al., 2017; Parola, 2021; Robertson & Pinstrup-Andersen, 2010; Walker, 2006; Yang & He, 2021).

The political-ecology theory postulates that the power positions of actors determine disparities in the costs and benefits distribution of natural resources irrespective of legitimate rights and needs. It is based on the fact that the power positions determine the coproduction of nature and disparity in societies (Blaikie & Brookfield, 1987; Robbins, 2019). In elucidating the theory of international hegemony, Clark (2011) stated that potent international actors can manipulate both international and national institutions, employing tactical measures to legitimize their exploitation of the resources or opportunities of other countries. The actors can colonize the resources of institutionally weak societies without military presence or any other direct physical coercion. North (1990) stated institutional changes alter the flows of inputs and outputs of existing social, political, economic, and environmental systems, which privilege some persons or groups and disadvantage others in societies. In an induced institutional change process, the changing actors mediate social, political, economic, or environmental phenomena or systems and structure the institutions of their interests. The institutions determine the production (availability), access (distribution), use, and stability of flows of products and services of resources in societies(Beunen & Patterson, 2019; Bromley, 1989; Kingston & Caballero, 2009).

Making institutional changes is often a challenging task. Galeotti and Goyal (2009) stated agencies seeking changes in existing local or national institutions or practices apply various strategic powers or tools to mediate the hindering actors and institutions for resulting in the desired goals. Tactics can influence on decision behaviors of targeted individuals, groups, or agencies and result in sociopolitical changes. Mintzberg (1987) pointed good strategies can be plan, ploy, pattern, position, and perspective. Robust tactics to win over others can be speedy actions, smart responses, maneuvers, ruses, feints, and deceits (Freeman 2015). A simple idea of strategy is to use strengths against weaknesses of targeted groups. Yulk et al. (1996) stated that change-seeking strategic actors also use rational persuasion, inspirational appeals, apprising (making appealing to follow), making coalition or collective effort, and collaborative work or participation. The other tactics include ingratiation (praising or uplifting), legitimating (authoritative force), pressure, deal (exchange), reward, cost compensation, personal appeals, or asking for a favor and consultation, including buying others' support (Yulk et al., 1996). Implementing the tactics effectively requires the purposeful designing of useful actions and calculating potential disruptions. The tactics create strength in the action process and overcome disruptions, thwarts, actions, and other obstacles in achieving strategic objectives. Context-based tactics make strategic agents succeed to achieve their goals effectively. Studies stated that international agencies seeking land grabbing applied some of these tactics to pursue governments for policy changes which made them success to exploit the land resources (Constantin et al., 2017; Yang & He, 2021).

Following the above theories, this study conceptualized the land dispossession problem in the political ecology-based institutional change theory. Figure 1 illustrates the conceptual phenomena that show the public land dispossession associated with political actions and interactions of elements of institution changes. It is hypothesized that representatives of countries with strategically powerful positions meddle with international environmental policy processes and structured them in their favor or interests. International developmental agencies may also apply a series of strategic tactics to influence key stakeholders and manage the land resources of Nepal primarily for foreigners' interests and benefits. The strategic interventions may result in reinforcing institutions and resource conditions that deprive local communities of controlling and accessing land resources and secure their to global societies, especially to developed countries for decades.

Study site, materials, and methods

UNIQUE context of Nepal

Nepal is situated in an ecologically vulnerable region (Ives & Messerli, 1989). The geo-ecology resulted in 80 percent of land area in sloppy hills and

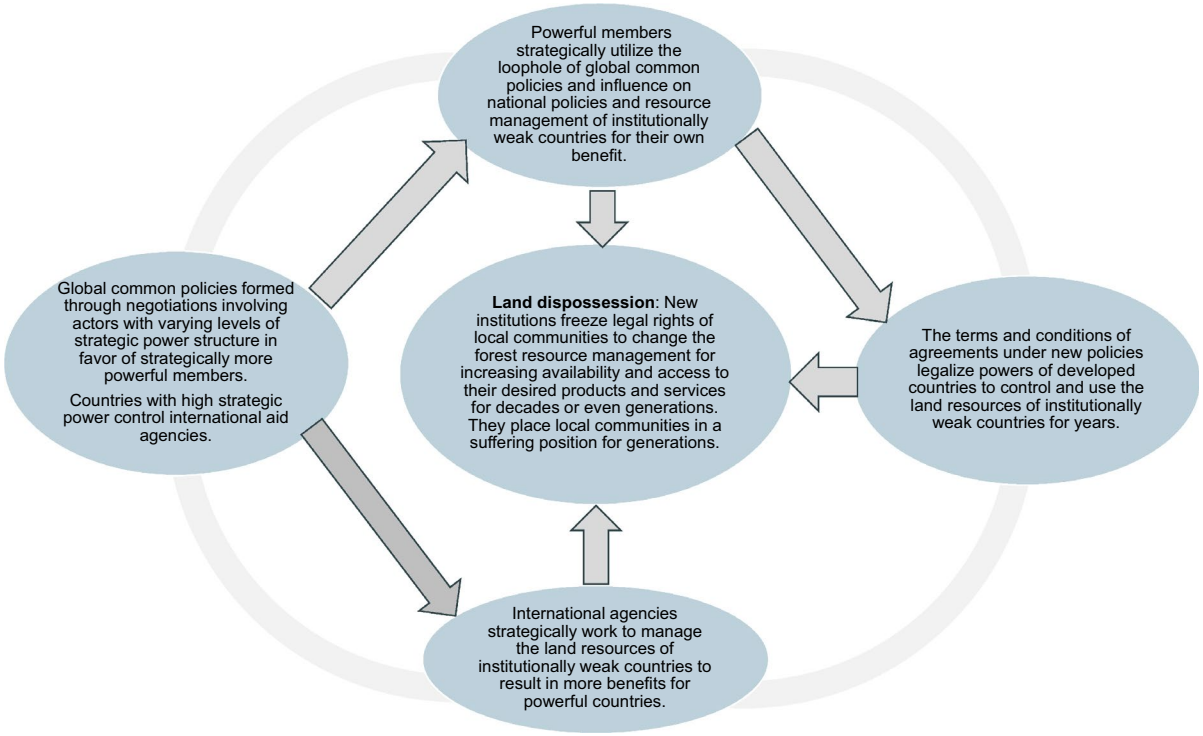

Fig. 1 Schematic diagram of the international political processes of intervening in land resource management in Nepal

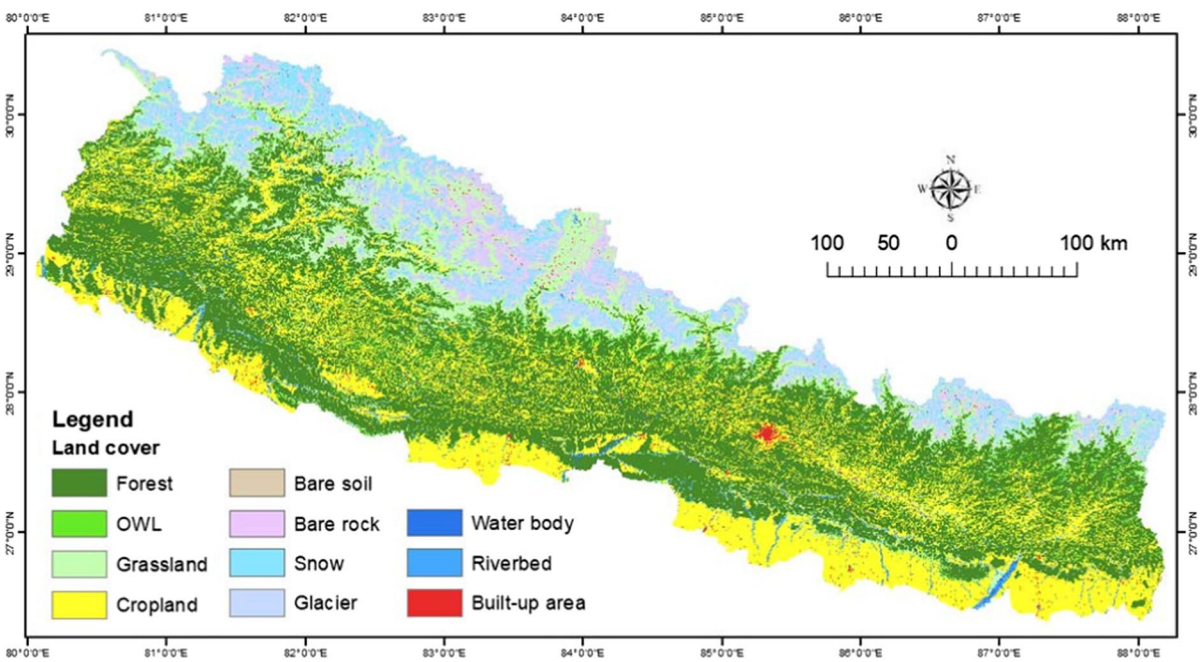

Fig. 2 View of geo-ecological condition-guided land uses and forest and farm mixed situations in the national landscapes of Nepal (Source: DLUS 2022)

Fig. 3 Over view of a typical public forest and farming mixed landscapes in a middle mountain region

high-mountain regions(CBS, 2019). These terrains are unstable due to the constant collision between the Indian and Tibetan plates (Ives & Messerli, 1989). The prolonged tectonic movements formed mountainous features with rocky and sloppy landscapes. Some of the features have been bottlenecks or critical barriers for animal mobilities and many activities of humans. Erratic torrential rains of monsoon forces very often trigger landslides in these sloppy terrains. Over 15 percent of the territory is geo-ecologically inhabitable (CBS, 2019; Gong et al., 2013; Uddin et al., 2015). The mountain communities appropriated arable farming land in environmentally relatively safer sites and managed geo-ecologically sensitive areas in common (public) for livestock grazing and other forestry uses to adapt to the harsh and vulnerable region. Some mountain communities practiced communal livestock farming to adapt to the limited availability of safe lands for farming and residential uses. Figure 2 shows the national-level view of farming and forestry mixed landscapes which was the result of traditional land use practices. Figure 3 shows a typical close view of the landscape in the middle mountain. The environmentally sensitive land formation guided the mountain communities to appropriate small patches of land for growing crops and left other lands in absentee or communal ownership for forestry including livestock uses. The land management system led to the evolution of crop-livestock mixed farming with the complement of forest resources. The forest–farm integrated production system made the communities able to sustain their living in the topographically and climatically harsh mountain region (Dhakal et al., 2022a; Ives & Messerli, 1989). Other mountain communities, such as Switzerland, have also adopted similar communal grazing practices in the woodlands of alpine and subalpine regions(Chételat et al., 2013; Mack et al., 2013). In addition, the Nepali mountain communities required the communal lands (pasture and forest lands) to carry and graze livestock and sustain farming in a small parcel of private land located away from residential property or other land parcels and in physically difficult or seasonally extreme weather sites of the mountain. The practices of communal ownership and multipurpose uses, including forest-integrated farming systems, contributed to the existence of reasonable sizes of natural forests around residential areas and the coexistence of many wild animals with humans in the same space in such harsh mountains of Nepal.

Table 1 Comparative land access position of Nepalese people relative to neighboring countries and some developed countries. Source: (CBS, 2019; Dhakal et al., 2022b; DLSU, 2022; FAO, 2010; World-Bank, 2021a)

Country	Rural population %	Per capita (ha)	Percentage of the total land of the nation			
			Agricultural land total	Arable land	Forest area (Primary forest *)	Protected area
Bangladesh	64.1	0.05	70.4	59.4	11.0 (30)	4.6
Bhutan	59.8	0.14	13.8	2.6	72.5(13)	48.0
China	42.0	0.09	56.2	12.7	22.4 (6)	17.1
India	66.4	0.12	60.5	52.6	23.8(23)	6.0
Nepal	80.7	0.08	28.8	14.8	44.7 (14)	23.6
Pakistan	63.3	0.15	47.0	40.3	1.9 (0)	12.3
Sri Lanka	81.6	0.06	43.7	20.7	32.9 (9)	29.9
Denmark	12.2	0.41	62.2	56.0	14.7 (5)	17.6
Finland	14.7	0.41	7.5	7.4	73.1 (0)	14.9
Germany	22.7	0.15	48.0	34.0	37.7(0)	23.7
Norway	18.1	0.16	2.7	2.2	33.2 (0)	17.0
Switzerland	26.2	0.05	38.4	10.1	31.8 (0)	9.7
Australia	14.1	1.90	47.6	6.0	16.3 (0)	17.0
UK	30.8	0.09	70.8	24.9	13.1 (0)	28.2
USA	17.8	0.47	44.4	16.7	33.9 (25)	13.0

*The figures in parentheses are the percentage of total forest area followed from FAO, 2010. Some countries consider primary forests to have intactly existed since ancient times, while other countries, including the USA, regard them as well protected native species forests whether lately established or anciently existed

Table 1 provides comparative land-use statistics of Nepal relative to most developed countries (those that provided technical or financial support to make a land-use change in Nepal) and neighboring countries and evidence of smallholding of private lands. The average private landholding of farmers is 0.7 ha, and over 50% of farmers hold less than 0.5 ha with an average of 2 parcels of 0.2 ha in size (CBS, 2019). Unlike most developed countries, Nepali farmers have little private forest and pasturelands. The private land resources are not adequate to produce daily needs for household use. The farmers require public forestland and pastureland to complement farming resources and sustain livelihoods.

Livestock is a vital resource for mountain farming (Fig. 4). It is the main vehicle for utilizing forest resources, plowing in narrow terraces, and providing manure for producing foods and other products of economic importance. Farming soil requires adding organic manure every crop growing season due to high rates of soil erosion and organic material loss in mountain terrains (Orlove & Guillet, 1985; Schroeder, 1985). The chemical fertilizer, even with

Fig. 4 Mountain farmers use bullocks for farm fertilization and plowing

a heavily subsidized price, can do little to restore the organic material loss in the soil. Apart from providing milk and milk products, meat, and draft power on the farm, livestock is a principal means for utilizing forest products and producing farmyard manure essential for restoring organic materials (Ives & Messerli, 1989).

The public land resources are especially important for indigenous ethnic communities who have been squeezed into marginal land areas as non-indigenous ethnic communities commence and reside in the regions with plain and fertile land areas (Bista, 1991). Current major locations of the ethnic communities is illustration in Fig. 5. Despite having limited farming land, agricultural friendly management of public land resources had made the indigenous ethnic and other land poor communities easier to sustain their lives and livelihood in the marginal lands. The communities used to graze livestock and collect other beneficial products from naturally grown in moderately open space in the forests (Fig. 6). Wild animals also harbored on the goods and services available in the open spaces which substantially reduced the spilling over or pressure of the wild animals into crop fields and human residences.

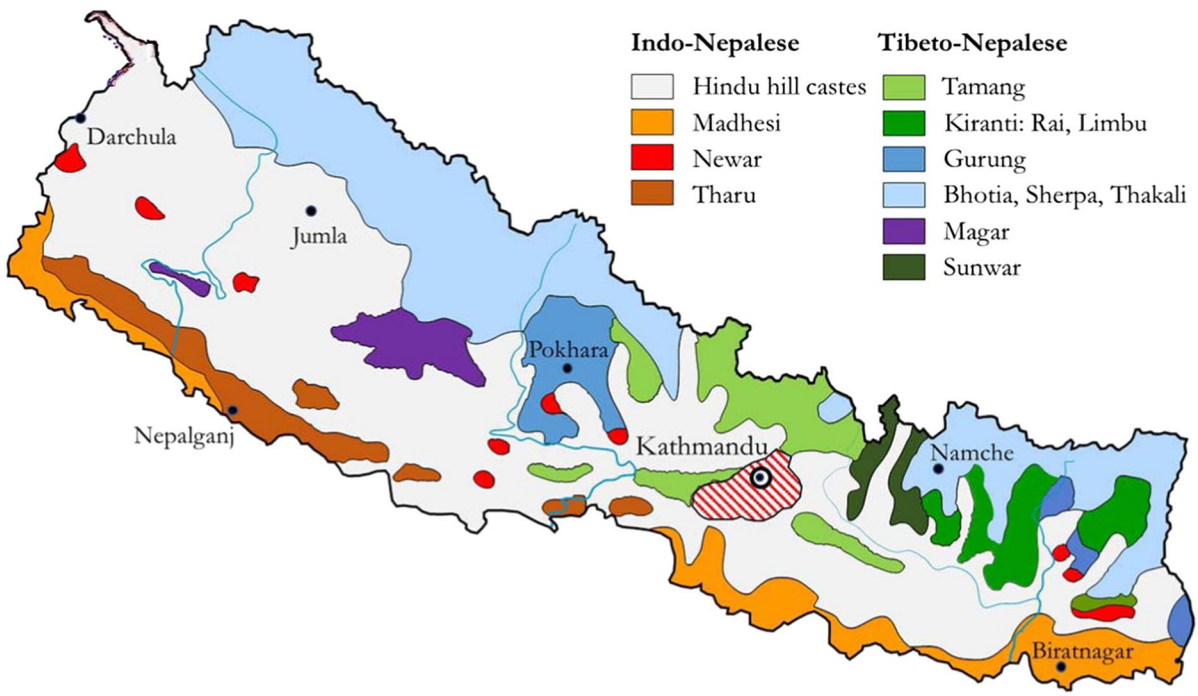

Fig. 5 Agro-ecological belt-wise distribution of Indo-Nepalese (non-indigenous except Tharu) and Tibeto-Nepalese (indigenous) ethnic communities in Nepal [Source: (Edmundson, 2019)]. Protected areas mostly established in the localities of indigenous ethnic communities

Study data and method

This study is primarily based on secondary sources of data from official work reports, event commentaries, national and international data banks, and other publications. The data were sourced mainly from UN databases, government databases, government documents, news media, and journal articles.

The data materials were collected from physical libraries, digital libraries, and subject matter-related websites. Thematic keywords and phrases popularly used in the forest, climate change, and wildlife were used in the search. To find international policy-related literature, we commonly used combinations of words or phrases with the term "forest", "environment" and often "international policies". The other commonly used words and phrases included deforestation, conservation history, summits, agreements, aid, resource politics, reduction of GHG emissions, environmental pollution problems, and REDD (reduced emissions from forest degradation and deforestation). Other terms were 'land use status, emerging land use change problems, forest area, arable lands, landscape scale, ecosystem services, climate change mitigation, decarbonization, emission trading, and carbon permanency'. The words "Nepal", "foreign aid", and "forest" were used jointly to find materials related to policy problems and development interventions. The other terms include 'land use history, aid agencies, international support, community-forest development, protected area, forest fire and livestock grazing, forest carbon sequestration, emission trading agreement, ecological restoration, and afforestation. Some data sources were found from the citations done in some literature from the libraries.

All authors are from Nepal and land use-related professions. The home connection provided them with opportunities to observe ongoing changes in the communities. Some of them often have visited the field and observed changes in their own interest

Fig. 6 A view of communal herds of high mountain livestock in indigenous pasturelands in Nepal (Photo credit: Gajendra Sapkota)

by interacting with local residents. The authors also worked for international organizations and gained familiarity with the working manners of the organizations. The lead author recently visited some communities and fields, interacted with them, and collected updated data. Some field photos and maps are shown to support the arguments or ideas and observations of communities.

All the information from those sources is descriptively presented and discussed. Supporting evidence from other fields is provided where appropriate. The cases were also analyzed based on evidence that the authors observed or experienced in communities and professional work sites. Other studies have also followed such mixed sources of data to assess high-level policy problems (Ellis & Mehrabi, 2019; Mortari, 2015).

International land politics, intervening processes, and utilization technicalities

Background of international politics on land resources

The land is a scarce natural capital with multifaceted values and competing or rivals in uses. Developed countries extensively cleared ancient natural forests and used the lands for crop farming, pasture development, and recreation benefits. The extensive use of land is one of the foundations of the current economic development and materially affluent living standards of their people. Natural forests remained there as low as less than four percent areas in European countries and less than 10 percent area in the USA (Lewis et al., 2019; Nègre, 2022). The land use change wiped out many biodiversity resources. For instance, the UK lost many ecologically and culturally valuable species such as wolf, wild boar and beaver lynx, bear, and white-tailed eagle (Thévenin, et al., 2020). Studies showed that reasonable numbers of people are against reintroducing the animals to avoid economic and social cost burdens (Auster et al., 2020).

Most current forest areas of the countries are newly planted or regenerated later (Nègre, 2022; Williams 2003). The current state of the primary forest of some countries is illustrated in the parentheses of the forest column of Table 1. The induced forests are also mostly (e.g. three-fourth in Europe) of even age trees. The countries utilize most of the annual increments (for instance 73% in Europe) of the forest stock (Forest-Europe, 2020). Most areas of forests in developing countries are owned by governments whereas about half of the forest areas in developed countries are owned or managed by the private sector (FAO, 2010). The private sector follows mostly clear-felling practices to harvest trees as illustrated in Fig. 7 (right photo). The management contributes only a small proportion to carbon sequestration. Private companies can use the forestland to grow alternative products or manage GHG emission-intensive businesses (e.g. dairy) based on market prices. The problem of complete deforestation including sequestrated carbon dissipation is less likely to occur freely or legitimately in government-controlled lands. Those new forests have also harbored lower levels of biodiversity resources. Even with high per capita GHG emissions (e,g, 16.5

Fig. 7 Views of chemical fertilizer-based commercial farming and forestry practices (left photo) and a common harvesting practice of commercial forests (right photo) in developed countries. (Sources: author left side and online right side (Pike, 2021)

15.7, 5.6, and 4.8-ton carbon-dioxide equivalent in 2018 respectively of Australia, USA, and Switzerland) and small population segment based on the agricultural production sector, the developed countries have still used a large share of their land for economic and other purposes and used low share for carbon sequestration(Table 1).

The developed countries have also used forests extensively for livestock grazing, crop farming, and recreational purposes. For example, Australia leases 338 million hectares (approximately 44% of the national area) of government-owned pasturelands to private companies. It leased 5.7 m hectares (greater than the size of Switzerland) of pasture to a single company (Australian Government, 2021, 2021). The US government authority issues nearly 18,000 permits and leases to allow livestock grazing on 155 million acres of public forestlands. The Forest Service of the USA defended livestock grazing in its national forests saying: "We believe that livestock grazing on these lands if responsibly done, provides a valuable resource to the livestock owners as well as the American people" (UFS, 2022b). The average landholdings of farmers are 4331 ha and 170 ha, respectively, in Australia and the USA (ABS, 2017; Shahbandeh, 2021). The massive areas of forestlands are used for industrial-scale livestock farming on chemical fertilizer-based pasturelands.

The carbon emission share disproportionately higher in the world is the outcome of practicing GHG emission-intensive economic activities and luxurious lifestyles (Brondizio et al., 2019; Lambin & Meyfroidt, 2011; Smith, 2018). Many developing countries have also followed similar paths of forestland use for economic development and citizens' wellbeing (Lambin & Meyfroidt, 2011). The demand for land resources for infrastructural, industrial, environmental, agricultural, and recreational uses has increased globally (Brondizio et al., 2019; Lambin & Meyfroidt, 2011; Smith, 2018). Most forests in developing countries have natural ecological conditions: native species with self-regenerative characteristics, intact habitats of wild species, and a rich store for forest carbon. The self-regeneration property of the forests is a blessing of nature for free carbon sequestration (Bond et al., 2019a; Lewis et al., 2019). The people with affluent and urban lifestyles, especially of European origin have deep recreational interest and conservation stake in those forests (Dhakal et al., 2022b). Visiting the primary forests provides humans an opportunity for an astonishing feeling of the intact natural environment of the ancient forests. The current land-use changes in developing countries have placed valuable natural assets under threat of disappearing (Adger, 2006). Economic uses of the land also increase GHG emissions- and make global climatic conditions worse. Increasing land use changes, especially in forestry in developing countries not only increases natural sinks for carbon sequestration but also reduces the source of GHG emissions such as the local livestock population and other GHG emission-intensive economic activities.

The changes in land use in one region also result in many rebound and cascade effects in other regions or countries via environmental, economic (e.g., agricultural business), and social systems(Lambin & Meyfroidt, 2011). The developed countries have intended to protect their GHG emission-intensive economies by increasing land use for forest carbon sequestration and introducing the policy of GHG emission trading to developing countries (Cabello & Gilbertson, 2012; Christoff, 2008; Griffiths & Martone, 2009). The trading policy makes a big difference in land use practices and other GHG emission-intensive production and trading of various commodities including agriculture between countries or regions. The locking of land resources of developing countries for carbon sequestration can also provide developed countries with future strategic strengths of agricultural products to compete with developing countries that are gradually taking over non-agricultural production and global economic powers. Control of the agricultural market including foods can be considered a hidden strategic motive of developed countries, to push the international environmental policies of increasing protected areas and forests with naturally intact vegetation and decarbonization in developing countries.

International political processes of intervening land management

Land use for forest carbon sequestration

Developed countries started the neocolonial mode of land grabbing of developing countries in the 1970s when they recognized GHG emissions from their

economic activities and lifestyles jeopardized global climatic conditions (Arts et al., 2010; Haibach & Schneider, 2013; White, 1979; WMO, 1979). They knew forests were sinks whereas livestock is a source of GHG emissions (WMO, 1979). The countries declared to escalate the climate mitigation campaign, mainly increasing forests globally at the UN Conference on the Human Environment, Stockholm in 1972 (Arts et al., 2010; Haibach & Schneider, 2013). They funded international agencies with undisclosed strategies wherever and however possible to increase forestry and reduce livestock in developing countries. But the development agencies said to the public of developing countries that they were helping for the development and conservation of forests and protected areas to minimize biodiversity loss and other local environmental degradation and to address local economic development and poverty (Bryant, 1998; Byron, 1997; Ives, 2004; Ives & Messerli, 1989).

People from developed countries have led and controlled the decision-making of international agencies and policy forums (Novosad & Werker, 2019). They worked strategically to influence land-use policies in developing countries and utilized the opportunities in favor of their home countries. Representatives of some of the agencies, during the preparatory phase of the Rio Earth Summit 1992, had done serious negotiations and attempts to make a legally binding agreement for managing natural forests primarily for climate change mitigation (Johnson, 1994). The binding policy would impose to manage the forests in the naturally intact system. The policy would hardly affect economic activities and community wellbeing in developed countries, as they have mainly plantation forests and mostly private lands (Nègre, 2022; Williams 2003). Developing countries, mainly India and Malaysia with the consciousness of national security and community well-being resisted against the extreme land-use international policies that were proposed by political representatives and INGOs of the developed countries (Johnson, 1994). India, for example, argued that the forests of developing countries are communal orchards to produce the daily needs products and services for local people. The government argued that locking the resources for carbon sequestration hampers the availability of its products for community livelihoods and adaptation against global climate change on one side and erodes the national sovereignty by international policy restriction to use them for national priority purposes or community wellbeing on another side (Christoff, 2008; Down to Earth, 2021; Hoffman, 2012; Johnson, 1994). The protest of those countries failed the Western countries' attempts of making a binding international agreement to manage natural forests primarily for mitigating global climate change (Down to Earth, 2021; Johnson, 1994). Then some of the green (I) NGOs of developed countries termed the non-binding agreement a chain saw charter (Johnson, 1994).

Developed countries got a dilemma in protecting their GHG emissions-intensive corporate economies or reducing harm to the environment. The dilemma made them failure in achieving the GHG emission reduction goal they voluntarily declared in the Kyoto protocol (Christoff, 2008; Lucas, 2021). The market-based environment management approach was introduced to dump GHG emissions of the countries in public land including natural forests of developing countries (Christoff, 2008). The following statement of participants in the REDD policy negotiation process well reflect the interests and intentions of developed countries to use public lands including forests of developing countries:

"Current negotiations seek consensus on the most effective methods and incentives for 'reducing emissions from deforestation and forest degradation (REDD), under which Northern countries would pay Southern countries for forestry practices within their national borders. One proposal is to give them aid money for the purpose. Another is for Southern countries to sell the carbon locked up in their forests to the North to allow Northern industries to continue polluting as usual under a global system of carbon trading" (Griffiths & Martone, 2008) (p.1).

Merits of forest carbon trading policy were over-exaggerated in the emission trading negotiation process over potential dire consequences of the policy (Kashwon et al. 2021; Sovacool et al., 2021). The parties wishing to introduce the REDD policy explained that the carbon trading policy would result in win–win outcomes (Phelps et al., 2012). They convinced the representatives of developing countries that the forest carbon trade would make the local communities and host countries much better off as it provides the funds for improving forest conditions, transfers cash from developed countries, and secures

income for local communities more than from conventional uses (Phelps et al., 2012). They ignored the fact that forest-based communities require using of forest products for social, cultural, and agrobiodiversity securities that the cash could not compensate or buy for them. In the negotiation process, the brokers of the policy justified the opportunity benefit (cost) of the emission trading policy (Cabello & Gilbertson, 2012; Christoff, 2008; Griffiths & Martone, 2009). However, the opportunity cost information can help to understand the potential gain or loss from investment in new projects over alternatives, only for private interest purposes. The forestland used for emission trading and climate change mitigation is a not project-based investment but a forever investment with highly potential adverse implications for communities and national holistic securities now and future. The win–win argument was a strategy for misleading the developing countries.

Moreover, many affairs of life of local communities in developing countries are directly and indirectly deeply attached to the forests. The opportunity cost analysis cannot adequately account for the non-monetary, indirect, and long-term costs for local communities resulting from knock-on or long-term-systemic effects of policy changes (Plumb et al., 2012). The policy has a substantial degree of risk of placing the resource-based community to suffer for generations. It could lead to extirpating cultural or social identity loss in the communities. The cost of the harm could not be accounted for by putting a price tag. Offsetting emissions for mitigating climate change requires permanent sequestration of carbon (Ruseva et al., 2020). The onsite permanent sequestration freeze opportunities of the land resources for other profitable uses in the future (Palmer, 2011). The beta conversion theory of economic development postulates that the difference in the opportunity costs and benefits of the land uses between developed and developing countries will be non-significant with development progress over time as the differences are associated with historical inequality in development stages and differences in information capability (Barro & Sala-i-Martin, 1992).

The political negotiators tactically pursued developing countries to endorse forest carbon trading policy at the Bali Summit in 2007 and fully rectify in Peris Sumit 2015 (Christoff, 2008; Häberli, 2018). This policy allowed developed countries to occupy the lands of developing countries for dumping GHG emissions in lands of forest-based communities and keep the lands of strategically powerful countries free for profitable uses (Christoff, 2008; Takacs, 2014). The details of terms of the emission trading were developed and approved in COP 26, Parish, and declared as the Warsaw Framework for REDD+. But aid agencies (e.g. ICIMOD and Norwegian agency) influenced governments and started implementing the REDD program in institutionally weak countries including Nepal in 2008 (Angelsen, 2017; Hajjar et al., 2021). Donor and aid agencies of the REDD have strategically introduced some technical terms and conditions to secure carbon sequestration and safeguard other requirements (Angelsen, 2017; Hajjar et al., 2021).

When the international aid agencies gained the confidence to get the REDD policy through from the international government forum, many UN institutions collaboratively initiated the developing and endorsing of an international policy of landscape-scale decarbonization(CIFOR, 2014). The target of the policy is to reduce GHG emissions including livestock businesses and increase forests on both private and public land in developing countries. The policy got approval when some developed countries and World Bank assured providing financial support to lure governments of developing countries for following the decarbonization policy (GLF, 2014, 2015). All the international organizations including the FAO and World Bank campaigned and pressurized to endorse the landscape scale decarbonization policy even though they had also committed developing countries to provide technical and other helps for agricultural research and food security. The agencies undoubtedly had known that such policies hamper the economic activities, food security, and livelihoods of the resources-based communities and nations and widen inequalities between developed and developing countries (Semieniuk & Yakovenko, 2020). The landscape scale decarbonization policy was approved at the Perish Climate Summit targeting developing countries (GLF, 2015; Häberli, 2018). The representatives of the developed countries had actively and strategically involved in the policy negotiation to get the concession for protecting their GHG-intensive farming business at the broader level Perish Climate Accord (Häberli, 2018).

Land use for biodiversity conservation

Similar sorts of strategic approaches were followed to capture the public in the name of biodiversity conservation. Most public forestry practices of most developing countries are not as GHG emission-intensive and biodiversity destructive as in developed countries. Many pro-community studies show that international agencies and environmentalists have misinterpreted the land use problems for convincing government agencies to control the resources of poor farmers (Bond et al., 2019a; Veldman et al., 2015, 2019). Kumar et al. (2020) identified that the agencies misleadingly explained Asian Savana and especially in the Himalayan region as degraded forests. Other studies reported similar misleading interpretations of the ecosystem status of African vegetation (Bond et al., 2019a; Veldman et al., 2015, 2019). Regular uses of vegetation in community vicinity for millenniums resulted in the evolution and establishment of ecosystems thriving in moderately open spaces. The biodiversity resources of such ecosystems are thrived better in moderately open forest conditions (Acharya, 2004; Hilmers et al., 2018; Joshi & Joshi, 2022). Moreover, a forest with moderately open conditions is essential to produce multiple products and services to meet daily household needs of local communities. The forests managed to optimize carbon sequestration reduce open spaces in the forests and hamper -millennium-old social-ecological systems of forests which are vital for wildlife habitats, conservation of locally important other biodiversity resources, and availability of multiple products and services to sustain livelihoods of forest-based communities in developing societies (Abreu et al., 2017). The lands, probably, would not draw the attention of the agencies if the lands were privatized, and managed with no trees similar to fine pasture farming in developed countries. The campaigns of ecological restoration are focused on the lands that consist of some naturally grown indigenous species which is the common case in developing countries including Nepal. The agencies have misinterpreted the biodiversity conditions to use more land spaces, especially in developing countries for forest carbon sequestration.

Scientifically, the need of establishing protected areas also varies between communities, regions, or countries (Veldman et al., 2019). The extent of land use in protected areas is supposed to be based on the critical requirement of managing intact ecosystems for reducing extinction threats of native ecosystems, plant and animal species, and genetic diversity, and continuing their services for functioning local social, economic, and environmental systems (Brondizio et al., 2019; Gannon et al., 2019; Macdonald et al., 2020) Some ecosystems, genetic diversity, and species are found thriving better in moderately open forest conditions, human-modified ecosystems, or outside protected areas (Acharya, 2004; Hilmers et al., 2018; Joshi & Joshi, 2022; Veldman et al., 2019). Most populations of many species roam or thrive in outside core territories. Ecosystems, including species compositions, also vary between micro-ecological pockets, which is a common case in mountain regions. Conservation of all ultra-micro-ecosystems is socially costly and scientifically not necessarily to protect biodiversity resources. It is not necessary to conserve all individuals that escaped from their core. Moreover, unlike in developed countries, the expansion of protected areas in developing countries occurs in the localities of human settlement and seriously affects the livelihoods of local people. Primary communities, especially indigenous ethnic groups, are also a part of biodiversity systems, as they contribute to enhancing and conserving biodiversity by strengthening local social-ecological systems. Despite knowing this, international conservation agencies dictated managing the land resources of institutionally weak countries as much as possible in naturally intact conditions, irrespective of the scientific logic (Brondizio et al., 2019; Gannon et al., 2019; Macdonald et al., 2020). The environmentalists have fooled the public with their symbolic and authority powers and established and expanded protected areas unnecessarily large land areas for meeting their interests. In a letter to IUCN members, a resource policy analyst stated that.

"While a percentage target for protected and conserved areas is simple, measurable, and can help gain political and public traction; areas are often designated as protected or conserved where it is convenient rather than because they are important for conserving biodiversity. Protected areas tend to be created in remote places, at high elevations, and in locations that are less likely to be developed for agriculture. Since 2010, protected areas have increasingly been created in places that are not sites of global biodiversity importance" (CrossRoad, 2021).

The international agencies set global blanket targets of managing 10%, 17%, and 30% of the national territory in a protected area with intact management by 2011, 2019, and 2030 by ignoring the scientific realities, community situations in developing societies, and pragmatic alternatives approaches (Brondizio et al., 2019; Gannon et al., 2019; Macdonald et al., 2020). Initially, the IUCN, a leading advocate for increasing protected areas, proposed a target of managing 10 percent of the national territory, based on the global average protected areas at the time, irrespective of species with critical threats of extinction (McNeely & Miller, 1983). In addition, the international agencies have further declared the 2020–30 period as the UN decade for ecosystem restoration and upscaling wilderness areas (Aronson et al., 2020; Colmey et al., 2020; Schneck et al., 2020). They have actively worked to provision financial incentives for ecological restoration and protected area expansion (Schneck et al., 2020) which lure bureaucrats and politicians from developing countries. A British biologist E. O. Wilson suggested managing half of the earth's land territory in protected areas by 2050. Now international agencies and environmentalists have advocated and attempted to place his suggestion into action (Büscher et al., 2017b). Other Western scholars have also advocated promoting naturally intact vegetation in half of the local land territory of farming areas (DeClerck et al. 2023). International agencies are likely to motivate governments of institutionally weak countries including Nepal to follow the extreme measure despite the farming practices of the country are reasonably biodiversity-friendlier than the industrial farming practices of developed countries. These facts imply that the hidden interests of the international organizations to increase forest in intact conditions and protected areas are carbon sequestration and control on food in developing countries. The biodiversity conservation can be considered propaganda to deceive the public.

Developed countries are advantaged from financial capital to increase forests in the public lands of developing countries for addressing the environmental problem they created (Bryant, 1998; Byron, 1997; Christoff, 2008). They followed the tactical measure in many international policy negotiations for persuading the government of developing countries to a binding agreement on the international policy proposal of land use changes (Christoff, 2008). The policy negotiators provisioned financial commitment from developed countries and other international financial institutions. Its typical cases are landscape scale decarbonization and REDD forestry (Christoff, 2008; GLF, 2014, 2015; Takacs, 2014). Similar strategic approaches were followed for expanding protected areas and ecological restoration in other land areas in developing countries (Deng et al., 2016; Stanturf & Mansourian, 2020). The funds are being disbursed in the name of increasing community capacity for adaptation to climate change, ecological restoration, or biodiversity conservation but they are used for decarbonization activities such as afforestation in community pasturelands, restriction on forest product uses, and replacement of indigenous livestock breeds that are evolved to sustain on tree fodder and other poor quality feeds s (WWF et al., 2019).

Recently, the developed countries and their supporting organizations have changed the channel of funding for forest development and protected areas expansion in developing countries. The change is probably made to escape from blame that they grabbed the livelihood supporting resources of poor communities. The fund is now channeled from overseas organizations, multilateral organizations, or INGO. Recently they have contributed through various international funding organizations such as Global Environmental Facility (GEF), Forest Carbon Partnership Facility (FCPF), and Environment Fund (OECD, 2020; Timilsina, 2021). The decarbonization policies and activities, by nature, distort procedures to economically efficient development paths which place the communities and countries in economically disadvantaged positions for the long term (Dhakal et al., 2022b; Semieniuk & Yakovenko, 2020).

Technicalities of Climate Forestry and Land Dispossession

Making climate change mitigation effective and long-lasting requires secure onsite carbon sequestration. International carbon credit trading policy requires the guarantee of sequestration permanent (Palmer, 2011). It means the forest carbon, once sold, must be protected in the forestlands for decades (TREES 2021). The sold carbon occupies the forestlands and restricts other uses. But, the buyers pay only once for the carbon credits. Those paid credits are called retired credits (not eligible to be

paid again). Most forest carbon credits of developing countries are sold in voluntary markets. The buyers of the voluntary markets retire the forest carbon credits as soon as they buy them. The retirement restricts the forests institutionally permanently against other uses unless the users buy and compensate the same amount of carbon credits from other sources (TREES 2021). The sellers do agreement with and pay to government to make it accountable for monitoring and securing the carbon credits. Communities cannot afford to buy that much carbon credits and manage the forestland for their best uses.

Credit purchasers retain their stakes in the forests through monitoring and verification channels to secure the purchased amount of carbon on the site. Thus, the forest carbon credits seller must bear the liability for generations (Brears, 2022; Broekhoff & Spalding-Fecher, 2021; Ghosh et al., 2012; Palmer, 2011). The information is little shared or not described in detail in international negotiations with the hidden objective of showing the forest carbon credit trade attractive to local communities in developing countries. The government authorities in institutionally weak countries have paid little attention to the technicalities while making forest carbon trading agreements with foreign agencies. Some aid agencies claimed they educated the officials of developing countries about it but they little told the complex and regressive technicalities (Dhakal et al., 2022a; Wester et al., 2019). Publications of the agencies rather showed that the governments or communities getperpetuate income from the carbon credit sell (Sharma et al. 2017; RIC 2015). The government policy decision makers havesimilar understanding. In addition, the buyers have super institutional arms, which makes it local communities difficult to reach and get back their full rights to forest uses (Brears, 2022; Ghosh et al., 2012). The transaction costs are out of reach of the communities for restoring their free use rights to the forests. The use of such strategic tactics to deal with the complex technicalities advantaged the developed countries.

Forest-based mitigation of climate change is itself a dubious approach. Forest fires are common, hardly avoidable events in developing countries, including Nepal, where forestlands are located around residential and farming lands that are mostly inaccessible by roads. Hundreds of fire events occur in such countries every year (Minya, 2021a). The frequency of fires and their harming intensity increases in the forests managed for carbon sequestration because the policy does not let local communities use forest products which eventually resulted in the building up of fuel load on the forest floor for burning. The fire in the forests of sloppy gradients spread quickly and with high intensity (Fig. 8 left side) which seriously harm local residents, wild animals, and other biodiversity resources in and around the forest. Recent forest fire events in Australia, the USA, and Europe with rich in fire control equipment also proved that increasing tree stock in forests is no longer a reliable measure for climate change mitigation (Ward et al., 2020). Moreover, the conservation-oriented forests harbor pests and aggressive weeds in the surrounding crop fields and residential areas. Despite the criminalized act from a legal perspective, local farmers purposively set fire to the forests, as in Fig. 8 (right side), to control aggressive plant species and wild beasts in their surrounding for protecting their families, livestock, and crops.

Increasing burning of biomass at a large scale may have pervasive adverse ecological impacts in the Himalayan region of Nepal. It has increased carbon aerosol in the atmosphere (Joshi et al., 2022; Yang et al., 2022) which is corresponded to increases in forest cover including forest fires (Minya, 2021a). The aerosol harms cloud formation and contribute to precipitation problem in the region (Moteki et al., 2023; Gupta et al., 2013). The forest fire and deposits of aerosol mostly occur during the dry season when the surfaces of the Himalayan mountain contain little or no snow (Yang 2022; Kang et al., 2020). The black carbon particles deposited in the snowing surface last for many years and increase the rate of retreating cryosphere and reduce their albedo services for cooling regional temperature (Moteki et al. 2023; Kang et al., 2020). The aerosol from the open fire makes greater harm than indoor household burning of firewood for the Himalayan cryosphere retreats because the physical structures of houses filter floating charcoal particles before escaping into the atmosphere. There are no such filtering structures for charcoal floated from forest fires. Most farming in the Himalayan regions is rainfed. Most critical rainfall anomalies that have affected the farmers have occurred following the critical forest fire season. These regional climatic problems can worsen when the REDD policy effect comes on a full scale. Fire management is a challenging and

Fig. 8 Views of the intensity of forest fire in mountain gradient (left side) and landscapes deliberately set fire by farmers to control weeds and pests (right side)

costly task in sloppy gradients and forests close to residential and agricultural lands. Ironically, international agencies such as the ICIMOD and other UN agencies that claimed working to reduce the cryosphere melting problem have rather exacerbarated the problem by promoting conservative forest management and increasing forest fuel-loads for forest fires (Gyamtsho, 2021; World Bank 2021b; Wester et al., 2019). If the agencies had worked sincerely and genuinely for mountain communities, they would not have advice and support the government to follow the harmful forest management model.

Foreign intervention process on land resource management in Nepal

Scoping for external interventions

Initially, the foreign agencies spread scary propaganda about looming environmental disasters in the mountain regions associated with local farming practices (Aase, 2017; Bajracharya, 1983; Dhakal et al., 2022a; Ives, 2004). Experts of FAO mission in 1952-53, perceived the mountain farmers idiotic for ruining the forest and destroying the local environment in their first Nepal. They suggested Nepal government to make interventions for changing the mountain farming systems and forest management (Graner, 1997; Robbe, 1954; Sinha 2011). The experts also shared their understanding with academia and scientists in western world. Then studies of Western researchers and international agencies surged in Nepal (Ives and Messerli 1989). Most of the studies concluded that Nepali farmers, especially Hindu religious communities hold unproductive livestock beyond their household needs and public lands' carrying capacity (Fox 1987) though the farmers had kept those animals to produce and apply farm manure every production season for growing foods sufficient for their families in meagre sloppy farmlands. They explained forest resource-based livestock farming was the main culprit of forest degradation and soil erosion in upstream, and flooding in downstream in the Himalayan region (Ives and Messerli 1989). The indigenous farming systems in the Himalayan region were unusual from the prospective of western people. Hamilton (1819) who visited Nepal during a British mission in 1802-1803 was also surprised when he observed management of both forest and pasture in common as well as well-nourished livestock grazed on scanty and inferior pastures, even worse than the Scottish heath. The following statements published in media are enough to understand the scariness of the warnings: "villagers must roam farther and farther from their homes to gather fodder and firewood, thus surrounding most villages with a widening circle of denuded hillsides. Ground-holding trees are disappearing fast

Fig. 9 Example of degraded and recovered appearance of the same trees and land with multipurpose land uses during postharvest (left side) and recovered seasons (right side) within a year

among the geologically young, jagged foothills of the Himalayas, which are among the most easily erodible anywhere. Landslides that destroy lives, homes, and crops occur more and more frequently throughout the Nepalese hill." (Eckholm, 1975) p. 189). A task force of international agencies for assessing global forest degradation claimed that "a few million subsistence hill farmers are undermining the life support of several hundred million people in the plains." (WRI, 1985: p. 4). However, the large-scale landslide cases in hills and flooding downstream is a natural process due to heavy rainfall, steep gradients, and the geology of the Himalayan mountain beyond the influences of local activities (Ives, 2004; Ives & Messerli, 1989). The foreign agencies generalized the situation by citing a few extreme cases in communities around Kathmandu valley where the old rulers carried out many timber-intensive construction activities for public and private purposes in Kathmandu and exhausted trees in these areas. International agencies globally spread the message that indigenous forestry and farming practices, especially livestock farming of mountain farmers, were evils for forest degradation, landslides, soil erosions upstream, and flooding downstream.

Most mountain farmers traditionally practiced silvopasture-based livestock farming in communal lands. The animals were fed naturally grown residual products of the forests and public lands. Some farmers lop forests and farm trees for fodder and fuelwood to meet daily household needs. These practices are adaptation measures to sustain life and livelihoods in harsh terrains and geo-ecologically sensitive regions with a small parcel of private land. The lopping practices give a degrading look to the trees in one season and recover in the next season, (Figs. 6 and 9). This is a regenerative production system of multipurpose forestry. The management resulted in communal forests with moderately open or mixed conditions (Dhakal et al., 2022a). The practices contributed to the existence of natural forests in centuries-long livestock grazing lands and the existence of wild mammals in human settlement proximities. If the mountain community had not followed the regenerative forestry practices, they would have destroyed the natural forests and privatized most of the lands around their communities (Schroeder, 1985). Natural forests and wild mammals would be left out only in a few localities as happened in the European countries (Green, 1990). But the foreign agencies

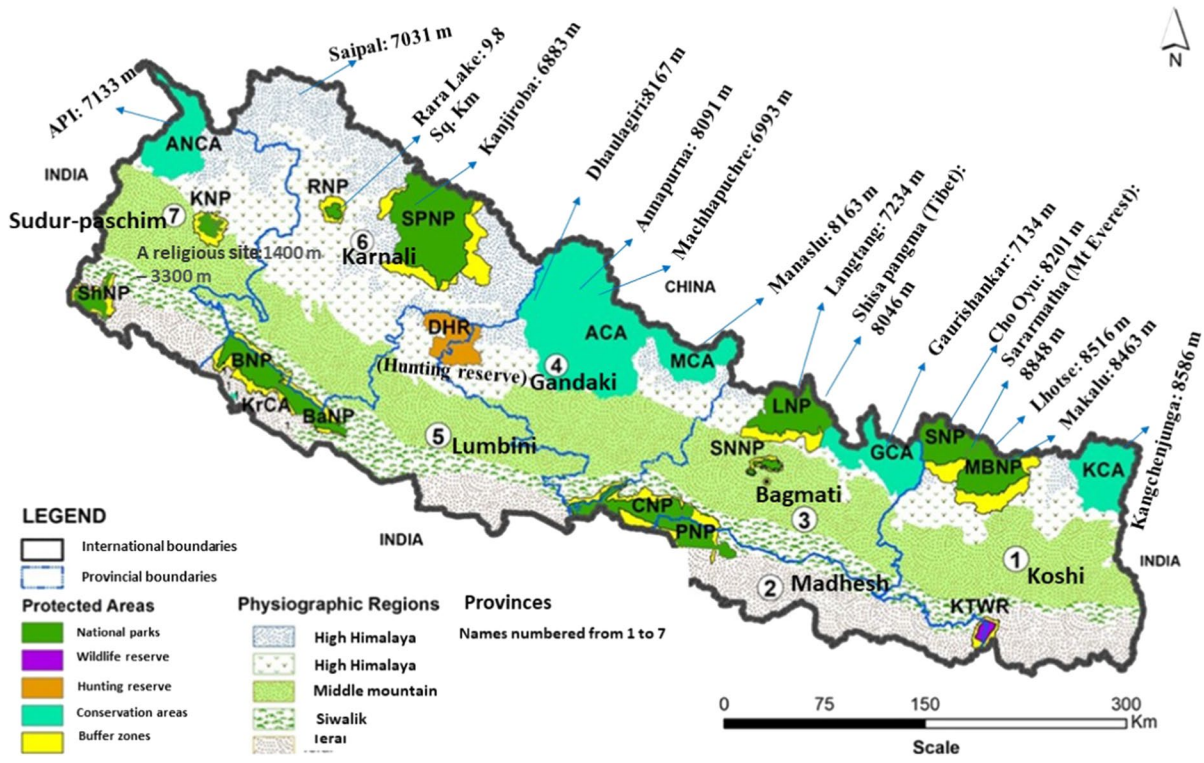

Fig. 10 Protected areas in Nepal are established mostly in the region of the highest mountains with adventurous recreational values for Western tourists (Source: The altitudes are labeled on map of Department of Wildlife Conservation 2022)

misinterpreted the farming realities and explained the practice a source of denuding trees forever (Ives & Messerli 1989). Nepal government followed feedback from the FAO experts and firstly nationalized and controlled mountain forests and pasturelands originally managed by local communities.

Citing the findings of the wrong studies, the foreign agencies called for united international interventions to address the environmental degradation problems in the region (Ives, 2004; Ives & Messerli, 1989). The time of the propaganda and interventions corresponds with the time the western countries understood the roles of livestock in increasing GHG emissions and forests for carbon sequestration (Arts et al., 2010; Haibach & Schneider, 2013). Livestock produces methane from the eruption and nitrous oxide from excreta, the high-power evils of radiative forcing (global warming). The restriction of forest products and uses forlivestock would reduce production of the greenhouse gas emissions and increase forest carbon sequestration. However, the agencies initiating interventions on institutions of land resource management told that they did it to restore the social power and rights of the community on the local forest management (Edmonds, 2003).

The foreign agencies applied similar misleading information to occupy the communal lands for establishing and expanding protected areas. They offered their technical and financial support by stressing the critical need of declaring and expanding protected areas for wild animals and other biodiversity and protection against extinction (Borradaile, 1977; Garratt, 1981; Heinen & Kattel, 1992; Shrestha et al., 2010b). Figure 10 shows most protected areas are established at high-altitude where mainly indigenous ethnic communities have inhabited. International environmental agencies attempted to vacate the local communities by moving them to Terai region (very hot place) in the late 1970s (Dhakal et al., 2022b; Heinen and Kattel 1992). They succeeded in relocating some communities but the migrated people died at an early age. The areas were not in desperate need of biodiversity conservation due to geo-ecologically and socially low degrees of existential threats to the species

(Shrestha et al., 2010b). In addition, most mountain wild animals with declining populations roam in confined territories (Yonzon & Hunter, 1991). Only a few of them escape from the territories on some occasions. It is illogical to expand protected areas in an unnecessarily large area to protect the escaped animals. The initial hidden interest of establishing the protected areas in regions with little threat to wild species was to enhance the quality of recreational sites for addressing interests of mountaineers and other tourists from developed countries (Borradaile, 1977; Dhakal et al., 2022b; Garratt, 1981). Now the international agencies motivated government agencies to expand in the localities of poor communities especially in indigenous ethnic ones for increasing land area for forest carbon sequestration and meeting global target of protected areas.

The mountain biodiversity thrives and can secure better in forests with moderately open conditions than in close-forest conditions due to their evolution in the human-disturbed ecosystem for millenniums. Expansion of protected areas further increases tree density and aggressive weed species. These weeds can invade the nearby community's farms and private lands causing noxious weed problems. The mountain people are accustomed to living in the open forest localities coexisting with wild animals such as monkeys. But, due to strict and conservative management of the public land resources, resulted in too many disturbances in the millennium-old mountain social-ecological systems. For example, the trend of presence and crops and other vegetation destruction by monkeys are seriously increasing in human residences and farmlands (Bista et al., 2021; Kc and Race 2019) as the canopies of trees and other vegetation increased excessively in local forests, the main habitat of the monkey. Some communities are compelled to abandon farming lands and be emigrated for good (Bista et al., 2021; Kc and Race 2019). Other wild beasts have multiplicated over carrying capacity of resourcesin protected areas. The animals come out from the jungle to farmlands and destroyed crops, and animals and threatened the lives of many local people . Annual reports of Wildlife Conservation showed that the wild animals killed 33,40 and 58 people and seriously wounded 110, 67, and 110 people, respectively in 2019/20, 2020/21, and 2021/22 (DNPWC, 2022). These figures do not include the deaths and injuries of people outside the protected areas. The victims' families merely get US$8,000. The payment cannot compensate for the loss of human life and the lifelong suffering of their families (Woodhouse et al., 2022). The endangered wild species can be easily monitored and addressed with modern knowledge without declaring the protected area in their habitats due to the species-friendly topographic conditions and indigenous practices of resource management. However, the aid agencies have ignored the ground realities and already available practical solutions, and rather insisted to increase protected areas in the name of protecting endangered wild species (Chaudhary et al., 2022).

The country had over 23.6 percent protected areas in addition to well-conserved large areas of other forests. The government agencies encroached on community-based forests, halted indigenous management, and expanded protected areas nearly to 30% to address the ambiguous international policy target of expanding protected areas up to 30% by 2030 and 50% by 2050 (Dhakal et al., 2022a; MFSC, 2016; MFSO, 2015; MOFSC, 2015b; WWF et al., 2019). ICOMOD has initiated to afforest 15,000 ha of community pastureland to address the UN 2030 decade of ecological restoration goal (Gyamtsho, 2021). These policies and practices of intact forest management rather hamper many biodiversity resources and ecological conditions that have evolved and thrived in human-modified environments for millenniums.

In addition, the International Fund for Agricultural Development (IFAD) offered the government technical advice and funds to afforest community pasturelands in community residential localities and marginal land areas. They leased the lands to ultra-poor households to avert the protest of the local community in their effort of afforesting the lands critically important for local community activities. The agencies offered some flash support and persuaded the poor households to do a binding agreement for afforestation and its conservation (Thoms et al., 2006). An author recently visited the field and observed that the growth of newly planted trees suppressed other beneficial vegetation for the leaseholders. The binding conservation agreement has made the leaseholder and neighbors worse off because the leasehold contract has hindered the communities to utilize seasonal forest products from their community forests. The forests, however, have sequestrated carbon and reduced

Table 2 Subsectore-wise alliances of international agencies to intervene in public land uses in Nepal

Alliance members and period	Main objectives
UNDP & FAO (the 1970s–80 s) after the Stockholm Declarations for environment conservation (Heinen & Kattel, 1992; Heinen & Shrestha 2006)	Convince the government to introduce the wildlife conservation act to establish protected areas. Guide the government to make other conservation related policies and laws specific to the situation for facilitating in doing the conservation activities. Establish national parks and other conservation areas
World Bank, FAO, ADB, USAID, FINIDA and WRI in the 1970s–80s (Aase, 2017; Aryal et al., 2019; Bajracharya, 1983; Edmonds, 2003; Ives & Messerli, 1989; MoF, 1988a)	Create global and national pressures to halt traditional uses of forestry and work for forest development and conservation. Advocacy and lobbying with government and stakeholders to introduce and implement policies and programs for forest development and conservation. Facilitate to government and stakeholders to make national forest development and conservation policies
IUCN, WWF, ICIMOD and Moutain Institute in the 1980s–1990s (Heinen & Shrestha 2006)	Prepare situation specific national strategies to increase protected areas. Pressurize the government to declare protected areas in other places. Guide the government to introduce buffer zones around protected areas
AUSAID, DEFID, SDC, and World Bank in the 1990s–2010s. (Aase, 2017; Aryal et al., 2021; Bajracharya, 1983; Dhakal, 2022; Edmonds, 2003; Ives & Messerli, 1989; MoF, 1988; Thoms, 2007; Thoms, 2008b; WWF et al., 2019)	Pressurize, direct and facilitate the government agencies to implement the Forestry Master Plan. Push and guide government to make new policies and laws for forest development and conservation
World Bank, ICIMOD, DFID, FINIDA SDC and INGOs 2010 to current (Bastakoti & Davidsen, 2015; Dhakal, 2014; Gyamtsho, 2021; Satyal et al., 2019; Wester et al., 2019; Wester et al., 2019)	Convince and support government agencies to participate in international environmental policy forums and follow the international policy decisions. Push in making national policies and implementation programs specially on forest-based climate change mitigation. Provision financial and technical supports to make government and other stakeholders' participation in international environmental policy forums and the forum decision implementations
ICIMOD, IUCN, UNDP, WWF, USAID and World Bank 2015-current(Aryal et al., 2021; Gyamtsho, 2021; Wester et al., 2019; World Bank, 2021a; WWF et al., 2019)	Facilitate and support government to participate international forums of biodiversity conservation and push and support to follow the policy decisions. Push and facilitate the government to carry on implementing biodiversity conservation-related policies, work strategies, and program activities that they advised and funded in the past
UN sub agencies, ICIMOD, DANIDA and NORAD (Gyamtsho, 2021)	Approach the government through the National Trust for Nature Conservation (a governmental organization) for further upscaling and intensifying forests or other vegetations in community pasturelands for ecological restoration and enhancing forest carbon sequestration

ICIMOD = International Centre for Integrated Mountain Development, an intergovernmental organization with mandates for identifying and suggesting root causes and novel solutions for livelihood enhancement, inequity, social crunches, and environmental crises for the governments of the Hindukush Mountain regions (Wester et al., 2019). The organization was originally established in the interest of environmentalist of Western countries (Ives & Messerli, 1989)

community livestock number (source of GHG emission) as intended by the funded agencies.

Alliance-based work

Many conflicts could arise from deliberately managing community lands for foreign benefit. The foreign agencies strategically followed an alliance approach that reduced the conflict of interest between them for advocacy, lobbying, and pressurizing the government agencies to endorse and implement the policies in line with their interests (Aryal et al., 2019). Table 2 shows the alliances of the international agencies formed with different partners at different times. Bilateral agencies disappeared from the front line recently, probably to escape the blame for the land-grabbing of poor communities.

Participation in policy formation

Foreign agencies justified the need and offered support for developing or amending national plans for

agriculture, biodiversity conservation, and forestry-related sectors. The plans are strategic frameworks for developing supplementary policies, laws, and their implementation directives for long-term strategic national securities (Aryal et al. 2019). The agencies had known the behaviors of government bureaucrats and other national stakeholders that would not seriously assess the plans seriously in terms of potential future national implications of the plan developed for them by other agencies. They pursued and convinced the government that national experts alone cannot develop such vital plans. The government agreed on the proposal with the belief that the international agencies would provide scientific expertise that contributed to making their countries prosperous (Aryal et al., 2021; Edmonds, 2003; Heinen & Kattel, 1992; Ives & Messerli, 1989; Master Plan 1988a 1988b; Thoms, 2007, 2008a). The government accepted their technical assistance and plans in exchange of getting financial support. Table 3 shows the names and land-capturing roles of the main international agencies that involved the major plan development since the mid-1970s. Unsurprisingly, the government endorsed the plans without assessing future implications with the temptation of getting financial aid for the policy implementation.

The experts manipulated plan formation and included the hidden conservation agenda favoring the interests of the developed countries rather than addressing the needs of local communities (Dhakal et al., 2022a; Hrabovszky & Miyan, 1987). For example, the Forestry Sector Master Plan 1988–2013 was prepared by the sole leadership of foreign experts. FAO coordinated various agencies in formulating the plan whereas Asian Development Bank (ADB), and FINIDA provided technical advice (MoF,). The plan directed the government to afforest community pasturelands and reduce and control the forest-based livestock population (Dhakal et al., 2022a; Hrabovszky & Miyan, 1987; MoF, 1988a). The plan dictated managing the forests mainly for wood production that the community requires in small quantities and not very often. The experts of the development support agencies, for example, FAO (often claim to the world leaders in providing advanced technical knowledge for food security) undoubtedly knew that the plantation of pine and other non-fodder species in pasturelands would critically jeopardize the food security and social conditions of the local communities with meager private lands. The plan development experts ignored the finding of independent experts' studies that the plan would result in the overproduction of timber and a critical shortage of daily need products, such as firewood and fodders for the local communities (Dhakal et al., 2022a; Hrabovszky & Miyan, 1987; MoF, 1988). Many INGOs and developed countries in the plan development time were involved in bargaining with developing countries to manage all public lands for global climate change mitigation (Johnson, 1994). The primary interest of the foreign experts to develop the timber-oriented forest was to increase forest for carbon sequestration and reduce livestock holding, the source of GHG. The aid agencies were supporting Nepal in forest resource-based livestock development until the early 1970s.

The recent Forestry Sector Strategy 2014–2025 was also developed under the support and guidance of the DFID/UK (MSFP, 2016). The plan followed the project document of the Multi-stakeholders Forestry Program (MSFP), a joint venture project of three bilateral agencies which had aimed to cease the institutions or practices of using forest resources, even residual forest products, and services for farming (MSFP, 2011). Its action plans have directed government to restrict household and farm uses of community forest products and promote forest carbon sequestration (MSFP, 2016).

International agencies also advised and supported to develop a national-level plan to implement the international policy of landscape-scale decarbonization (GLF, 2014, 2015; MFSC, 2016). The plan targeted abolishing forest-based livestock and increasing tree stocks for global climate change mitigation (MFSC, 2016; WWF et al., 2019). Forest resources based livestock farming is the most viable and effective solution of transition to sustainability and climate change adaptation for the mountain communities. The measure is not acknowledged in the long term plans of national adaption programme of actions (NAPA) and national REDD strategies that the government prepared under the technical advice of international agencies (GON 2010; 2018). The plans has structured to manage public lands including forests primarily for carbon sequestration. They emphasized for increasing tree plantation in private lands though the small country has arable land much less than 14 percent (obsolete statistics) of total national areas and two –third of 30 million total population living on agricultural

Table 3 List of international agencies involved in policy formation

Role-playing agencies	Developed policies	Land use outcomes
FAO, UNDP, and NZAID	Guided Nepal to introduce the Wildlife Conservation Act (1973) and started the establishment of protected areas, in the 1970s–mid1980s	The government followed the act and declared national parks and conservation areas in the localities and communal pasturelands of disadvantaged ethnic communities and around the highest snow peaks (Himalayas) with high recreational interest for western tourists. Legalized the government to acquire the lands of local communities with high recreational values and relocate the communities in the area with extreme climatic conditions. Advised government to cease communal pasturelands and restricted livestock grazing in centuries-old pasturelands of the local communities. The government made laws to abolish indigenous breeds of goats, even in the private land of the communities in Sagarmatha NP. (Aryal et al., 2014; Dhakal et al., 2022a; Heinen & Kattel, 1992; UNEP-and-WCMC, 2011)
INGOs (IUCN and Mountain Institute)	Biodiversity conservation strategies, plans and laws 1980–2008 (Heinen and Shrestha, 2006)	Following the strategies Nepal government established or expanded protected areas wherever and however possible
ADB, AUSAID, DANIDA, DFID, FINIDA, GTZ, SDC, USAID, and World Bank	Forestry sector master plan 1988 (for 25 years) (MoF)	Afforested in all open spaces of forests and community pasturelands. Restricted forest fodder collection and phasing out livestock grazing from the forest and other public land and limiting their production on private land. Managed community forests primarily to supply woods to urban users and industries, with the hidden interest of increasing forest carbon sequestration (Hrabovszky & Miyan, 1987; MoF 1988a, 1988b)
DFID, FINIDA and SDC	Forestry sector strategy 2014–2025 (MSFP 2014)	Endorsed managing all community forests (communal orchards) for carbon sequestration. Made plan to do afforestation in pastureland, Prepared action plans to delink agriculture from forestry where possible
ICIMOD, IUCN, and UNDP	Landscape-scale conservation plan 2015 (MSFP, 2016)	Endorsed landscape-scale decarbonization policy, Worked out strategic zones in the country and developed action plans for the intensification of biodiversity conservation and decarbonization Planned to reduce household use of forest products Directed to restrict indigenous farming culture of forest fodder collection, including livestock grazing systems
World Bank and ICIMOD	The policy of managing forests for carbon credit trading	Funded and technically supported to develop and implement a carbon forestry plan. (Wester et al., 2019; World-Bank, 2021b)
IUCN, ICIMOD UNDP, USAID, and WWF	The National Biodiversity Strategies and Action Plan 2014–2020; Terai Arc Biodiversity Strategies 2016–2025 (MOFSC, 2015b; MSFP, 2016)	They directed converting large areas of production forests to sustainable (protected) forests. Guided government to increase protected areas and network corridors. Guided government to relocate some communities and acquire lands for developing wildlife corridors to connect to India. Planned to abolish indigenous livestock farming practices
Fifteen international organizations including ADB	Agriculture Development Strategy 2014–2025 (NPC, 2014)	Endorsed implementing the REDD forestry action plans even on private lands. Planned to increase forestry in private lands

based livelihoods. It is against the freedom given by the Paris climate accord that provided GHG concessions to food production activities(Häberli, 2018).

Speedily working process

International agencies were also involved actively in implementing the resource management policies with the justification that the government agency had limited financial and human resources, knowledge, and inefficient, and underdeveloped working capacity. The main agencies actively involved in forest development policy implementation include AUSAID, DFID, FINIDA, SDC, USAID, and World Bank. The direct involvement of AUSAID, DFID, SDC, and USAID in forest plantation, user group formation, and community developments was in a few districts (Edmonds, 2003; Thoms, 2007). The World Bank and FINIDA provided funds and forest staff incentives to plant trees and form community user groups with binding forest management plans where ever possible in the rest of the districts except Manage in different periods. Most of them had established their own organizational entities and employed staff including expatriates parallel to government from the national to the local level (Edmonds, 2003; Thoms, 2007). The expatriates pushed government officials to expedite work and achieve their best work progress. In the pilot project areas, the agencies demonstrated speedy work on user group formation, forest management plan preparation, areas afforestation or enrichment, and forests handed over to community user groups for management. The work pressure motivated the government workers to compromise on forming functional user groups (Edmonds, 2003; Thoms, 2007). The REDD policy was discussed in 2005 and endorsed in an international forum in 2007 and fully recognized at Peris Climate Summit in 2015. Some policies are not finalized even in 2022 (Granziera et al. 2022). But the ICIMOD with a Norwegian fund started the activities of REDD work in Nepal in 2004 and implemented it in the field in 2008 (ICIMOD 2019; Dhakal, 2014). The World Bank, the leading agency providing Nepal financial support and technical advice in developing a forest carbon trading policy, bought carbon credits from some forests of high strategic important (from a future national development perspective) locations (Bara, Parsa, Nawalparasi, Rupandehi, Kapilvastu and Kailali districts) at a lifetime of a one-off payment of $5 per ton (World Bank, 2021). Ironically, a study funded by the World Bank itself also proved that carbon credit trading at $5 would make the country economically worse off (RIC, 2015). Many studies showed that the REDD forestry policy is detrimental to local communities (Poudel et al., 2015; Satyal et al., 2019). The agency has still advised the government and funded to develop istitutional capacity of government institutions and estimating forest carbon to sell forest carbon credits for the rest of the forests.

Similar speedy approaches are followed in cases of international landscape scale decarbonization policy (LSDP) and the UN ecological restoration policy. The LSDP was endorsed in international policy forums in 2013 and approved in the global climate summit forum in 2015. The aid agencies pushed the Nepal government to develop a national policy in 2016 and started implementation work in 2017 (GLF, 2014, 2015; MFSC, 2016; WWF et al., 2019). WWF has implemented the program to displace forest resource-based livestock (WWF et al., 2019). ICIMOD declared experimenting with the UN policy of ecological restoration by planting trees in remaining pasturelands as it the experimented implementation of the REDD forestry policy in communities (Gyamtsho, 2021; Wester et al., 2019). Nepal's government would not practice such early in the absence of the push of international agencies.

Resource development and management

Community-based lands including forests were supposed to manage for producing multiple goods and services tomeet the daily needs of local forest users (Fig. 11). But the agencies focused on increasing tree stocks. Most public lands including community pasturelands were planted with non-fodder species such as pine, leaving no land space for livestock grazing. The species could establish and grow reasonably fast and would not be used in livestock feed. The tree species suppress growth understorey vegetation, the valuable livestock feed. Open land spaces in the forests were fields with enrichment plantations. The plantation hampered the land spaces that were traditionally available for the naturally growing of fodder, pasture, and other non-timber forest species, and harbouring for wild animals in the forests. Management of most conservation areas are oriented to create naturally

Fig. 11 The lifestyle of a traditional forest resource-based community of Nepal where people fetch fodder from a community forest (left) to provide feed for livestock (a lady milking a cow) right) for solving daily hand-to-mouth problems. Collecting and carrying fodder from the community forests (similar to the case in the left side photo) can be seen rarely nowadays because forests (trees) managed for global climate change mitigation are mainly non-fodder species that suppress the growth of any indigenous self-grown fodder trees

intact forest conditions and greater sequestration of forest carbon (Dhakal et al., 2022b). Livestock grazing is restricted especially in the regions with intensive interventions of the agencies. Collection of even daily need residuals of ground grasses and firewood are allowed only for a limited period and not necessarily during critical need season. The recently introduced forestry policies or programs such as REDD, and landscape-scale decarbonization have followed the same approaches (Khatri et al. 2019; Paudel et al. 2015) (WWF et al., 2019). The carbon sequestration or protection-oriented forest management has dramatically reduced the number of livestock-holding households and animal-holding per household (Chhetri et al., 2023). The planted forests have substantially reduced dry season stream flow in the local water sources (Ghimire et al. 2017).

The foreign agencies advised and funded to manage the public lands contrary to what the funding agencies are practicing in their home countries. The average private landholding of Nepali farmers(0.7 ha) is incomparable to the farmers in developed countries (Table 1). Even after accounting for the public forestland, a Nepali community with 295 households owns an average of 128 ha area of forestland, which is less than 1 ha of forest per household (CBS, 2019; Luintel et al., 2018). The farmers need forest resources to feed livestock. Traditionally, the farmers fed on naturally grown forage and tree fodder for producing farm manure and making a basic living for families (Fig. 5). The practice is also far more environmentally friendly (climate, biodiversity, and soil erosion) than those in developing countries (Fig. 7). But developed countries, for example, Australia advised and funded to afforest pine species in community pasturelands and displaced the community land-based livestock from the 1970s to 2010s (Thoms, 2008b; Edmonds, 2003; Ives & Messerli, 1989; Master Plan 1988). Figure 12 illustrates some recent situations of the forests that were planted with non-fodder fast-growing species in community pasturelands almost 50 years ago with grants and technical support from foreign agencies. The officially declared objective for the large-scale afforestation in the community pastureland was to increase timber production. Now it has been obvious that the hidden objectives of the afforestation were for forest carbon sequestration and local livestock reduction. The prospect of forest management for the best uses of local communities is institutionally locked (Nuberg et al., 2019). Ironically, the country was allowing its farmers to convert forests into cropping fields and pasturelands at the same time. As

Fig. 12 Current conditions of industrial forestry were established in community pasturelands with the technical advice and financial support of the Australian Agency for International Development Development (AUSAID) almost 50 years ago

a result, the forest area of the country was recorded historically as the lowest (close forest in 4.6% of the national land territory) in the 1990s (Bradshaw, 2012).

The land use practices of other developed countries supporting afforested community pastureland are similar. The UK wiped out primary forests and wild mammals and converted almost all lands for farming (FAO, 2010). Primary forests were wiped out in Finland too. Switzerland is still paying their farmers to keep up the indigenous institutions of grazing livestock in forests (Chételat et al., 2013; Mack et al., 2013). But these developed countries worked in Nepal to afforest community pasturelands. They even developed a forest development plan to abolish forest forage-based livestock in Nepal (Dhakal & Adhikari, 2022; MSFP, 2011). Switzerland is another example of country that has a protected area of hardly 9% of the national territory and provided its farmers attractive financial incentives to keep livestock grazing in public forests (Chételat et al., 2013; Mack et al., 2013). The headquarter of IUCN (the agency promoting used protected areas world wide) is also housed in the country. But the country advised and funded Nepal to afforest and restrict grazing in community pasturelands and expand the protected area in communities based on forest resources despite Nepal already having a protected area more than twice the percentage of the protected area of Switzerland. The WWF, an INGO fully administered and funded by the USAID, has worked to abolish forest forage-based indigenous livestock breeds in Nepali farmers for landscape-scale decarbonization and managing the forest for carbon sequestration (Dhakal & Adhikari, 2022 WWF et al., 2019).

Induced institutions to control and exploite local communities

The expatriates influenced and guided the senior government officials to develop guidelines for forest user group formation, forest operational plan development, and work progress monitoring. The guidelines made the forest-based communities mandatory to form and registered user groups officially, develop and make government-approval of their forest operational plan and work accordingly (Basnyat et al., 2019). The requirements made the communities mandatorily accountable to the rules and direction of government agencies. Now, government officials use the plan to regulate and control communities. The international REDD policy has made the government responsible for monitoring and reporting the performance and permanency of forest carbon sequestration and reporting them to international bodies (Granziera et al. 2022; Streck 2020). The Nepal government

amended forest acts accordingly and released new acts that have legally binding communities and local forest authorities to safeguard forest carbon (Forest Act 2076). The government has used the acts and restricted communities to utilize available forest products. It restricted the utilization of wood from local forests even for building a house in the event of the mega-earthquake in 2015, citing many trivial environmental issues (Baral et al., 2019).

Cooperation and free labors of local communities were very important for forest development and protection. The international agencies trained field-level officials on techniques for dealing with and convincing communities, local leaders, and other stakeholders (Bartlett, 1992). The officials were trained to apply sociopsychological pressures to persuade local people and leaders. In community forestry development programs, the forest-based community people were told that the international agencies and government were spending such big funds for long-term benefits. In the REDD project, the aid agencies told the incentives of REDD payment to persuade the communities to give up daily using of forest forage products or livestock grazing in forests (Poudel et al., 2015; Satyal et al., 2019). Communities were given assurance that inconveniences in their daily household activities associated with forest development activities were temporary and would be compensated shortly. Some government officials often threatened communities that they hold legal power to punish those who interfere in forest development and conservation. Despite knowing the harm of conservative management on their livelihood, most households agreed and cooperated with the external initiatives of forest development and have contributed regularly free labor or cash for forestry, development, and protection due to social pressures and not to be a black sheep in the community (Shrestha & McManus, 2008). Initially, some households did little protest with the hope that the product supply problem could be solved soon. The changing situations particularly by the advancing of regulative institutions and the growing of forest covers squeezed the possibilities of the households resuming normal business. When restrictions on accessing daily needs products and services extended for a significant period, the forest based farmers especially land poor households gave up or compromised the forest resource-based business for good and sought alternative livelihoods (Dhakal et al., 2022a). But the members are cooperating and contributing to forest protection to retain their membership for potential future indirect benefits (Basnyat et al., 2019; Poudel et al., 2015).

Now trees have grown significantly big and left little space for growing daily need forest products (Fig. 3). The collection of daily household needs residual products of the forests are not allowed in many communities even have hardly a few trees grown in the forests (Fig. 13). Heterogeneity in social powers and interests has also hindered keeping up the restriction due to collective decisions. Generally, powerful people hold leadership positions and discourage easier and regular collection of daily need forest products for avoiding distribution and other management complexities including minuses risks. The agreement with the government authority to follow the forest management plan and protect the forest has also bounded the leadership body for continuing social restriction on the product uses (Basnyat et al., 2019). The external interventions have, thus, institutionally locked-in and oppressed the local communities which have made the international and government agencies easier to exploit both communities and their resources.

Following technical advice and support from international agencies protected areas are declared expanded in community-based forests and residential areas (Dhakal et al., 2022b; Heinen & Kattel, 1992). The community lands are acquired with coercive force and ignoring community protests. Some areas with high recreational values for Western tourists are also managed in protected areas by relocating them to localities with extreme weather conditions (Heinen & Kattel, 1992). Many harsh rules are introduced to control local communities for managing the forest resources naturally intact condition as much as possible. International agencies motivated government agencies to control the activities of local people in the forests and make the areas effectively protected. They advised and supported the government to mobilize military personnel to control or restrict local communities from collecting forest products and services conservation (Dongol & Neumann, 2021). Over 8000 militaries are deployed for this purpose. They have frequently harshly treated and sexually abused, even killed local forest resource users particularly indigenous ethnic communities, poor people, and women (Dongol & Neumann, 2021; Jana, 2007; LAHURNIP,

Fig. 13 A forest with bare resource conditions even after 25 years of strict protection. The eroded condition of the land is due to natural geological makeup, not the result of human activities. Most land areas (upper part) shown in this figure are of a community forest and the rest part (bottom side) of a leasehold forest. This forest produces mostly only herbs (mostly *Lantana camera*) and grasses that are only useful for livestock feeds. The products were supposed to allow to collect throughout the year as it was a practice before officially declaring a community forest. Local people require compulsory watching of the forest and reporting the progress of its conservation after the forest conservation policy. But the utilization of forest products is restricted only to 7 days a year. The community is required to change the forest use practices addressing official complexities in managing the forest

2020). The military presence also increased the number of infidelity children (born from illegitimate relationships with gullible girls) and repetitive rape cases of women (Jana, 2007; LAHURNIP, 2020). The military activities and behaviors propelled some families surrounding the barracks to leave for good from their communities for getting alternative livelihoods and keeping family members safe from ill-behaviors of the military personnel and harms of wild animals. The international agencies also advised and funded the government to establish and operationalize spying institutions to control local communities where military efforts to control local communities are ineffective (Dhakal et al. 2022b). The rules of protected areas have blocked not only the collection of forest products but also hindered on developing infrastructures in the institutionally disadvantaged localities. The government registered the protected areas in international bodies to get international recognition and support. It requires practicing international protocols and standards in managing these protected areas. Offices of major international organizations (e.g. the IUCN, WWF, ICIMOD, and UNDP) are established in the country to monitor and control the protected areas. The resource management activities of the organizations are directly or indirectly controlled by people from developed countries (Dhakal & Adhikari, 2022).

Incentives for manourvering land use policies and practices

The main tactic of international agencies to succeed in managing land resources in addressing their best interests including global benefit is offering grants and other lucrative incentives to government bureaucrats and other stakeholders. Government officials do not initiate new policies or programs unless they feel public pressure. Officials of donor agencies conceptualized and prepared most of all forest development-related projects and forwarded the government agency for legal approval to show their work or achieve working targets or objectives in the country. They provisioned attractive incentives to motivate government

Table 4 Common incentive approach for vested interest objectives of foreign agencies (Devkota, 2010; Dhakal et al., 2022a; Edmonds, 2003; MSFP, 2011). (Ghimire, 2016)

Incentive	Achievements for foreign agencies
Funded for the development of plans and other policies, -sensitive measures for long-term national securities	Got opportunities for involvement or influence in policies or plans
Funded for extra incentives (e.g. salary or allowance topping up and material facilities) in policy implementation. Offered multiple opportunities for overseas tours and conferences for senior officers and policy makers including parliamentarians and ministers whereas training and higher studies for the young circle	Succeeded implementing the program of their interests timely and maximally.
Funded government staff for study and travel abroad in the name of capacity development	Built close relationships with the government staff and also made them loyal to work in their interests. Then theygot cooperation, support, or approval to endorse the program activities of their interests in desired time
Provided flash (short-term) funds for tree plantation and their protection grants and free off-communities tours for communities or elite people	Lured local communities to support them to complete their instant program activities
Have funded costs of running organizations and staff travel of national umbrella organizations of forest user groups (FECOFUN) and indigenous ethnic communities	Made the members of the organizations loyal to them and avoided protests on managing the forest for foreign benefits
Sponsored research, media programs, and other events	Sponsored studies produce findings in support of donors' interests. Media shared the outcomes of the programs highlighting successful cases. Made beneficiaries of the events (organizers and participants) loyal to them and kept silent on the regressive programs or supports
Provided job or consultancy projects for retired senior government officials and other people having a social network with powerful people	Accomplished or approved socially inappropriate programs using the network

officials for getting timely official approval of the policies and programs and adequate cooperation for their implementations (Aryal et al., 2021; Devkota, 2010). The tradition of getting such incentives has motivated government bureaucrats to follow international advice and policies without any critics. Table 4 lists details of common approaches and objectives of the grant and incentives use.

The international agencies have provisioned a large share of grants outside the government regulating system to carry out activities of their interests. For instance, aid agencies spent over 50% of grants related to financial aid outside the government budgetary system in 2020/21 (MoF, 2022). The beneficiaries including the government bureaucrats hardly get such benefits or income from regular government systems. Foreign agencies have used the fund even for openly unethical practices. For example, they funded the travel costs of the chairperson of FECOFUN to Glasgow Climate Summit-2021 and persuaded her to sign an agreement of managing almost one-third of community forests of the countries for carbon sequestration (Fecofun, 2023; Miya 2021b; LEAF 2023; Pokhrel, 2021).

The foreign aid incentive motivated academicians and other scholars to produce the information or findings that support working interests or proposals of international agencies. The findings or claims of such studies are scientifically flawed. For example, most sponsored studies suggested that managing community-based forests for carbon credit trading is a novel and more profitable or beneficial than other uses (Dissanayake et al., 2015; Karky & Skutsch, 2010; Rai et al.,2021; Sharma et al., 2017). Even the aid-funded REDD policy impact assessment study (RIC, 2015) carried out by foreign agencies especially for the government policy decision produced misleading information: Nepal would gain substantial benefits from forest carbon trading. The study employed the wrong study method (tool of assessing policy impact on

fully market-based economy societies) and parameter (annuity from forest carbon credit trading) to show the benefit of the REDD policy. The policy impacts rural communities which have predominantly non-market-based economies. The one-off income from forest carbon trading is not an annuity. Moreover, most benefits of the forest resource are non-market in characteristics. The reduction of shortage of products and services critically hampers local livelihoods and environmental conservation. None of the foreign agencies-funded studies raised those critical issues. The restriction of forest products (raw materials) reduces local economic activities (Dhakal et al. 2012; Reyes & Nelson, 2014). Since forest products still a complement of private land ones to sustain farming in many mountain communities, the shrinking effect of forest carbon trading on national economics will be a multiplier in the magnitude of land use in carbon sequestration. In addition, the trade brings only one off income but it locks the forestland in carbon sequestration for decades. The overwhelming number of sponsored studies focused on governance issues, the agenda of the international agencies' interest, to share the income from the carbon credit sell (Bhattarai et al., 2023; Marasini et al. 2020; Ojha & Hall, 2023; GC 2018). The payment irrespective of modality cannot compensate for the material needs of the communities and local environments. The overwhelming studies on the merits of carbon trading and governance of distribution have drawn the attention of policy decision-makers on superficial issues and diverted away from the critical problems. Similarly, sponsored studies on the biodiversity field also concluded and recommended managing the public lands under a protected area regime even if data supported better thriving of biodiversity species in moderately open tree canopy forests or multiple-used landscapes (Joshi & Joshi, 2022). The aid motivated the researchers to investigate resource conservation problems with wrong concepts and study methods. The sponsorships made them loyal to doners.

Grants also motivated even international agencies to mislead government decisions. For instance, ICIMOD suggested increasing protected areas and afforestation for biodiversity conservation, water security, food security, and poverty alleviation of the mountain communities (Chaudhary et al., 2022; Wester et al., 2019). The local communities with millennium-long practices and experiences of natural resource management have developed unique social-ecological systems to alleviate the problems and adapt to the harsh and vulnerable ecological landscapes of the mountains. The activities of afforestation and protected areas expansions inappropriate to local conditions or beyond the local needs have rather exacerbated the problems in the mountain regions (Dhakal et al. 2022a, 2022b). In recent field visits, some mountain communities told that the water in their drinking sources is decreasing for the last decades. The main causes are increasing trees in forests and private lands and decreasing soil operation (soil water recharging activity) in farming lands of the drinking water catchments. The increasing density of trees increases the evapotranspiration of water from the tree foliage. The foliage of the tree also reduces water rechange in soil (Rüegg et al., 2022). Soil work for crop farming facilitates for soil water recharging in mountain landscapes. Increasing the land uses in protected areas further reduces stream flows due to increas the density of trees and aggressive weed species in the community surrounding and abandoning crop growing associated with the wild animal harms. But the ICIMOD with its headquarter housed in Nepali soil has insisted the Nepal government for increasing afforestation in remaining community pasturelands and increase protected areas (Chaudhary et al. 2022; Gyamtsho, 2021). The organization has got funds from developed countries and other international financial institutions for producing and sharing such misleading information (Wester et al., 2019). Literature termed institutional corruption for such practices (Metz, 1995; Thompson, 2018).

International agencies hire socially influential or retired senior officials from the same country or neighboring countries in international positions to influence national policies. When national officials get senior positions in international organizations, they work best to achieve the international target or objective irrespective of harm to the local community and nation (Gyamtsho, 2021; WWF et al., 2019). The international agencies have controlled the officials to achieve their best interests by assigning special job responsibilities, rating job performances, designing programs, and controlling budgets in the areas of their interests. These people can easily approach and influence senior government officials and politicians and contribute in achieve international goals. Most young circles in the conservation field cannot criticize or

challenge on activities of the experts. Now developed countries and international financial institutions have changed working channels to escape blame for using the resources of poor communities for their own benefit payment channels. Now, the bilateral development agencies of the countries have suspended their direct involvement in forestry sectors, but they have funded and worked through UN agencies and INGOs and paid through GFE and FCPF (FCPF, 2016; WWF et al., 2019). The funds are often called the climate green fund which are established for decarbonizing development activities or placing further development paths with low GHG emissions (FCPF, 2016; WWF et al., 2019). Developed countries have formed different institutional structures to grab the lands of developing countries. For instance, the governments of some developed countries (the US, UK, and Norway) and leading multinational companies (Airbnb, Amazon, Bayer, BCG, GSK, McKinsey, Nestle, Salesforce, and Unilever) have formed a coalition titled Lowering Emission Accelerated Forestry Financing (LEAF) that has done an agreement with Nepal government to use forest carbon credits of forests in Gandaki, Bagmati and Lumbini provinces (Miya 2021b; LEAF 2023). International aid agencies including experts from those countries had strategically manipulated Nepal's policy development and directed the forest management primarily for carbon sequestration since the 1970s (Dhungana et al., 2018; Edmonds, 2003; ICIMOD, 2019; Ives & Messerli, 1989; Thoms, 2007).

Discussion

This study explained the politics and policy processes of managing the public lands of developing societies to benefit other countries. Strong financial positions and working experts advantaged the developed countries to introduce international policies. The experts took leadership or played proactive roles in policy agenda-making, proposing alternatives, discussion, and negotiation in international policy processes which made them successful to structure the international environmental policies in favor of their own countries. The representatives of the countries well assessed the potential future implications of various policy alternatives for protecting the economies of their countries and forwarded the policy proposal that best benefited their countries. The policies have been now institutional mechanisms to control public lands management and shift or dump the environmental problems of developed countries in developing countries including Nepal. The finding is consistent with the international hegemony theory of Clark (2011) that materially or symbolically powerful societies or countries can use political or other institutional tactics and get benefits from the resources of institutionally weak countries.

Managing the lands of local community livelihood sources for foreign benefit is a challenging task. But the developed countries achieved it by mobilizing international aid agencies with materializing symbolic power. The agencies applied a series of strategic tactics and achieve their hidden goal of the countries. The tactics ranged from frightening to lucrative incentives. The tactics worked well to influence, maneuver, persuade, attract, and drive politicians, government actors, stakeholders, and communities. Most tactical intervention approaches are similar to the ones proven successful in other contexts (Cabello & Gilbertson, 2012; Kingston & Caballero, 2009; Metz, 1995; Shrestha, 1990). The interventions on institutions and resource management have resulted in serious disruption and complication on the vulnerable social, economic, and ecological systems which have positioned many communities unable to change resource management and utilize even available products.

This study showed the influences of social power on public land use decisions. Institutionally strong government, for example, India has protected areas in hardly six percent of the national land territory, whereas Nepal has publicly declared 23.65 percent, and other areas are in the process of declaring soon to make at least 30% by 2030. In 1993, the land use in protected areas was hardly four percent in India whereas it was 11% in Nepal (Kanel & Shrestha, 2001; Rawal & Dhar, 2001). The foreign agencies have not dared to push India for increasing protected areas. Rather the agencies have twisted scientific realities and praised the country contributed large areas for biodiversity conservation of global interests. For instance, ICIMOD people reported that India has contributed generously a big land area, the highest

contribution relative to other countries including Nepal in the Himalayan regions for conserving globally valuable biodiversity (Chaudhary et al., 2022). Workers of international organizations generally praise materially or internationally powerful countries often realities (Novosad & Werker, 2019). Even when local professionals got management positions in international organizations, the funds and programs bound them to follow anti-national or locally harmful policies (Dhakal & Adhikari, 2022). It is because most people in developed countries make conservation programs and arrange funds. In the case of Nepal, the international agencies took advantage of institutional weakness including rampant bad governance and corrupt practices of bureaucrats, academicians, and other stakeholders. The agencies dared and succeeded to buy the sovereignty of poor nations, the humanitarian and morality of bureaucrats, the professional or academic ethics of academicians and other educated people, the basic means of poor people, and lives of the forest resource-based communities. They succeeded with their grants or incentives that lured the national actors to work against local community and national securies and for the best interests of the foreign agencies. They did misuse, abuse, and overuse the grants in some areas and disuse or little use in needy areas. The incentives motivated the Nepali bureaucrats, academicians, and other educated people to work against humanities, national sovereignty, professional ethic or integrities, and community and national securities.

The international agencies worked against humanity and the UN Genocide Convention 1948. When the establishment or expansion of protected areas placed the resource-based communities in extreme hardship for living, the Christian missionaries, mostly influx from those developed countries (UMN 2023), exploited the exacerbated miseries of the communities and converted them to Christianity. The highest number of the converted Christian population is from indigenous ethnic communities either displaced from forest conservation areas, living in forest margins, or in the localities of protected areas such as Chitwan National Park and Langtang National Park. For example, only a few households of the Chepang population were Christianity followers in the 1991 census which increased to 8.8 percent in 2001 and 25 120percent in the 2011 census (Dahal 2003; CBS 2017). Nearly 50 percent of the total Chepang population is likely to be Christianity followers in the 2021 census. International environmental conservation agencies such as ICIMOD, WWF, IUCN, UNDP, and World Bank have very often carried out social surveys in the communities to extend their interventions and have been well aware of the situations that their work facilitated the Christian missionaries for deliberate change of religion and cultural destruction of socially marginalized communities.

Article II of the UN Genocide Convention 1948, describes "genocide as a crime committed with the intent to destroy a national, ethnic, racial or religious group, in whole or in part". Recent studies showed that the perpetrating agents rarely disclose the intent, the procedures, and the outcomes are the main indicators of whether the involved agencies committed genocide (Cox 2017). In addition to culturally alienating (facilitative and strategically changed religious and cultures of whole ethnic communities), the conservation agencies have placed the socially marginalized communities in positions to be more materially deprived (food and livelihood means), physically harmed (killing or injuries by wild animals and sexual abuse and harsh treatment by conservation officials), culturally alienated (facilitative and strategically changed religious and cultures of whole ethnic communities), and institutionally (legally prosecuted against utilizing traditional resources of their community lands) of further deprived them of food (the life-supporting means) for generations. The government has prosecuted a disproportionately higher number of people from those communities to enforce conservation activities (Paudel et al., 2015). The populations of most of the communities in their homelands have decreased (Dhakal et al. 2022b). These conservation activities are done primarily to offset GHG emissions produced mainly by materially affluent and institutionally powerful societies and to provide better quality recreational services to materially well-off crazy tourists or recreationists. The social and economic outcomes of the current neo-colonization of the public lands for the mountain communities are almost similar to European colonization in the USA and Africa in the 1700s and 1800s (Stannard 1993). The government agencies especially the forestry bureaucrats are also primary culprits as they legalized and supported the inhumanity activities to benefit crazy people of other countries instead of working for vulnerable citizens and national security.

Paradoxically the aid agencies worked for Nepal with the assurance of providing the scientifically best expertise for the institutionally weak country but they worked against scientific facts to make the best benefit of developed countries which made the environmental and other problems of Nepal worse. Governments of developed countries have provisioned large areas of bare land even for adventure and other recreation facilities for their people. But the countries funded to afforest even in meager land areas around their residential areas that poor people used for managing bare daily hand-to-mouth problems. This study showed that forest carbon sequestration locks the public lands for decades and makes local communities suffer for generations. It also explained that forestry carbon sequestration is not a reliable measure to mitigate climate change. The forest carbon credit trading policy also motivates polluting industries to continue GHG emissions (Brusscher et al., 2017). The forest managed for carbon sequestration rather exacerbates climate change problems in particular to the Himalayan regions. The international emission trading policy thus can be considered a hidden strategy of environment conservationists of developed countries to colonize the land resources of institutionally weak countries and get other indirect benefits from them. The aid agencies also willfully mismanaged the land resources of poor communities to protect the polluted industries and extravagant lifestyles of people in developed countries at the humanitarian costs of developing societies. Metz (1995), an American scholar, also had a similar finding that the international aid agencies invested in Nepal to reinforce the status quo of development position and secure their working opportunities and other benefits for the long term (Metz, 1995). Such outcomes can be considered common phenomena when any agency offers support for vested interests. International aid agencies including environmentalists can be considered devil patrons in the modern world for the public resources-based communities including indigenous ethnic groups by considering their rhetorics, intervention intentions, support attributes, and outcomes. There are some international policy directives to safeguard the livelihoods of resource-based communities particularly the indigenous ethnic groups (Springer & Almeida, 2015; Granziera et al., 2022). The aid agencies, however, did not follow these directives due to vested interests.

Conclusions

This documented information from multiple sources and explained the international politics and processes of dispossessing developing societies including Nepal of public land resources. Regarding the backgrounds of developed countries and international agencies, spreading environmental crisis propaganda, involving proactively in international policy development, and the offers of free technical and financial support on forestry development in developing countries including Nepal found hidden strategies to manage the land resources for their own benefits. This study also found that developed countries succeeded to structure international environmental policies and managing land resources of developing countries for their own best benefits by involving them strategically and proactively in the development and making ratification of the policies and working through different international agencies. The financial offers (climate green fund) found an effective strategy of developed countries to persuade the representatives of institutionally weak developing countries for accepting and rectifying the land use international policies that they wanted. The policies legalized the developed countries to make interventions, control and manage the public lands of developing societies for their best benefit. The carbon trading policy has many hard conditionalities and especially requires the carbon sequestration management on situ (forestlands) for undefined years, a critical requirement for climate change mitigation. Security and advantages of carbon sequestration rest on wood-oriented and intact management of forests. The forestlands have a finite capacity for carbon sequestration. The conditions found the critical barriers that have made the local community dispossessed of the land resource for decades. The one-off payment system is a politically constructed condition to favor buyers, the powerful countries.

The international aid agencies intervened with a series of strategic tactics in changing institutions and managing land resources. The tactics ranged from the misinterpretation of resource management problems, formation of working alliances, key involvement in policy formation, implementation, and forest development, formation of organizations parallel to government bodies, working hastily without proper assessment, and offering incentives to key stakeholders.

The lucrative incentives of foresign aid motivated government bureaucrats, academicians, and other stakeholders to propagate misleading knowledge, and work against local communities and national securities for pleasing donor agencies including powerful countries. The intervention tactics made the agencies successful to change national and local institutions, social-ecological systems, biophysical conditions, and community behaviors related to the resources that resulted in an excellent level of benefit for global societies and especially developed countries. Decades-long support of international development agencies for forest development and conservation in developing countries irrespective of social and environmental harms to local communities also implies that the agencies are working for achieving the vested interests of developed countries. In other words, the international environmental institutions and policies have been vehicles of developed countries with powerful positions. The finding implies that powerful countries can exploit the benefits of public land resources of developing countries by using international aid agencies and other international pathways with strategic approaches in place of military forces or other physical coercions.

The public lands including forests were a blessing to the mountain communities. Pro-community multipurpose management of the land resources would benefit still a large segment of the population especially women, retirees from low paid jobs and other institutionally disadvantaged including handicapped people. But the environmental agencies, those working in the name of protecting living means and well-being of future generations, have managed the resources for dumping excess (GHG emissions) and quenching crazy wild thirst of the materially affluent societies that have ruined the environment. They have made the resources a curse for environmental friendly local communities mainly indigenous ethnic groups for generations. Considering the generational suffering of the local communities, the offices of the environmental organizations can be described as workshops of devils in disguise. The finding of the study implies that developing countries require a very serious assessment of technical advice and financial aid offers from international organizations including the multilateral ones before accepting them. Nepal requires descaling the protected areas and radical changes in the current structures of forest management to halt alarmingly emigration, rural deculturalization, social group segregation, farming land abandonment, local food scarcity, and life-hedging heritages (agrobiodiversity, indigenous knowledge, and forest resources-based farming cultures) degradation. The problems cannot be addressed without the complement of products and services of public land resources to private land ones in the mountain landscape contexts. The chance of effective changes of resource management is slim as long as the presence of theinternational environmental agencies remains in the country in any form. Breaking the serious and excusable degree of bad governance (working against communities, security, and sovereignty of the nation) inherited in official cultures and team works of the forestry machineries of government is little possible without suspending their activities for 10 years. The reform case would be a good lesson for new generation bureaucrats, academicians, and other professional groups and to enlighten the public on managing the public resources for local community well-being and national securities. The chance of following the suggestions in the global hegemonial situation, however, is slim in the near future unless the unjust and inhumanitarian outcomes breed heinous feelings in the key role players. Grassroot level social movements especially agitated by dedicated leaders of indigenous ethnic communities might make some difference from the current level of organized oppression and exploitation by the materially and institutionally powerful social groups with ill intentions.

This paper highlights only the key policy processes on how the land and forest resources of developing societies are being exploited by powerful countries for global benefits in the name of climate change mitigation. Some approaches may be significantly different among regions. Future studies on diverse cross-country cases would provide a better understanding of the land-grabbing problem.

Acknowledgements The deteriorating social situations of indigenous ethnic communities and other forest resource-based communities motivated the authors to investigate this study problems. This study was carried out voluntarily. We would like to thank Mr Rishi Ram Dhakal who provided some photos and updated information in the communities.

Funding Open Access funding enabled and organized by CAUL and its Member Institutions.

Data availability This study is mainly based on secondary sources of data. Other data are not from any sensitive sources. There is no other data worth sharing or requiring to disclose here.

Declarations

Conflicts of interest The authors have no conflict of interest in the findings. However, they are from developing societies and authors' communities. The authors carried this study voluntarily as they observed escalating problems of life casualties, economic and environmental vulnerabilities, illegitimate exploitation and marginalization of their communities that are based on public lands including forest resources. The objective of this study is to explain the current malevolent outcomes from the works of international environmentalists oragencies and share them with global and local publics. Therefore, the contents and findings of this study may be different from externally sponsor studies in some extent. GoN (2018) Nepal National REDD+ Strategy 2018. Government of Nepal. Ministry of Forests and Environment. Kathmandu Nepal.

Ethical approval The study is based on secondary sources of data. We have followed all ethnical terms and conditions to prepare the manuscript. The sources are declared with references. Therefore, this study did not require ethics review.

References

Aase, T. H. (2017). Are doomsday scenarios best seen as failed predictions or political detonators? The case of the 'theory of Himalayan environmental degradation.' *Geographical Journal of Nepal, 10*, 1–14.

Abreu, R. C., Hoffmann, W. A., Vasconcelos, H. L., Pilon, N. A., Rossatto, D. R., & Durigan, G. (2017). The biodiversity cost of carbon sequestration in tropical savanna. *Science Advances, 3*(8), e1701284.

ABS. (2017). Agricultural Commodities, Australia, 2015–16

Acharya, K. P. (2004). Does community forests management supports biodiversity conservation? Evidences from two community forests from the mid hills of Nepal. *Journal of Forest and Livelihood, 4*(1), 44–54.

Adger, W. N. (2006). Vulnerability. *Global Environmental Change, 16*(3), 268–281. https://doi.org/10.1016/j.gloenvcha.2006.02.006

Angelsen, A. (2017). REDD+ as result-based aid: General lessons and bilateral agreements of Norway. *Review of Development Economics, 21*(2), 237–264.

Aronson, J., Goodwin, N., Orlando, L., Eisenberg, C., & Cross, A. T. (2020). A world of possibilities: Six restoration strategies to support the united nation's decade on ecosystem restoration. *Restoration Ecology, 28*(4), 730–736.

Arts, B., Appelstrand, M., Kleinschmit, D., Pülzl, H., Visseren-Hamakers, I., Atyi, R. E. A., Thomas, E., McGinley, K., & Yasmi, Y. (2010). Discourses, actors and instruments in international forest governance. Paper presented at the *Embracing complexity: Meeting the challenges of international forest governance. A global assessment report. Prepared by the Global Forest Expert Panel on the International Forest Regime*

Aryal, K., Laudari, H. K., Neupane, P. R., & Maraseni, T. (2021). Who shapes the environmental policy in the global south? Unpacking the reality of Nepal. *Environmental Science & Policy, 121*, 78–88.

Auster, R. E., Puttock, A., & Brazier, R. (2020). Unravelling perceptions of Eurasian beaver reintroduction in Great Britain. *Area, 52*(2), 364–375.

Australian Government. (2021). *Land tenure: Pastoral leases*. Retrieved August 23, 2021, from https://www.austrade.gov.au/land-tenure/land-tenure/leasehold-land

Bajracharya, D. (1983). Deforestation in the food/fuel context: Historical and political perspectives from Nepal. *Mountain Research and Development, 3*(3), 227–240.

Baral, S., Meilby, H., & Chhetri, B. (2019). The contested role of management plans in improving forest conditions in Nepal's community forests. *International Forestry Review, 21*(1), 37–50.

Barro, R. J., & Sala-i-Martin, X. (1992). Convergence. *Journal of Political Economy, 100*(2), 223–251.

Bartlett, A. (1992). A review of community forestry advances in Nepal. *The Commonwealth Forestry Review, 71*(2), 95–100.

Basnyat, B., Treue, T., & Pokharel, R. K. (2019). Bureaucratic recentralisation of Nepal's community forestry sector. *International Forestry Review, 21*(4), 401–415.

Bastakoti, R. R., & Davidsen, C. (2015). Nepal's REDD+ readiness preparation and multi-stakeholder consultation challenges. *Journal of Forest and Livelihood, 13*(1), 30–43.

Beunen, R., & Patterson, J. J. (2019). Analysing institutional change in environmental governance: Exploring the concept of 'institutional work.' *Journal of Environmental Planning and Management, 62*(1), 12–29.

Bhattarai, N., Karky, B. S., Avtar, R., Thapa, R. B., & Watanabe, T. (2023). Are countries ready for REDD+ payments? REDD+ readiness in Bhutan, India, Myanmar, and Nepal. *Sustainability, 15*(7), 6078.

Bijaya, D. G., Bhandari, J., Shengkui, C., Shaofeng, J., Can, L., & Author, C. (2018). Payment for ecosystem services in Nepal: A literature review on overview and

recommendations for further research. *Acta Scientific Agriculture, 2*(11), 37–42.
Bista, D. B. (1991). *Fatalism and development: Nepal's struggle for modernization*. Orient Blackswan.
Bista, R., Zhang, Q., Parajuli, R., Karki, R., Khanal Chhetri, B. B., & Song, C. (2021). Cropland abandonment in the community-forestry landscape in the middle hills of Nepal. *Earth Interactions, 25*(1), 136–150.
Blaikie, P., & Brookfield, H. (1987). Colonialism, development and degradation. *Land degradation and society.* Methuen.
Bond, W. J., Stevens, N., Midgley, G. F., & Lehmann, C. E. (2019a). The trouble with trees: Afforestation plans for Africa. *Trends in Ecology & Evolution, 34*(11), 963–965.
Borradaile, L., Green, M. Moon, L. Robinson, P. & Tait, A. (1977). *Langtang National Park Management Plan 1977–1982*
Bradshaw, C. J. (2012). Little left to lose: Deforestation and forest degradation in Australia since European colonization. *Journal of Plant Ecology, 5*(1), 109–120.
Brears, R. C. (2022). Voluntary carbon offsets financing nature-based solutions. *Financing nature-based solutions* (pp. 213–239). Springer.
Broekhoff, D., & Spalding-Fecher, R. (2021). Assessing crediting scheme standards and practices for ensuring unit quality under the Paris agreement. *Carbon Management, 12*(6), 635–648. https://doi.org/10.1080/17583004.2021.1994016
Bromley, D. (1989). *Economic interests and institutions: The conceptual foundations of public policy*. Basil Blackwell.
Brondizio, E. S., Settele, J., Díaz, S., & Ngo, H. T. (2019). Global assessment report on biodiversity and ecosystem services of the intergovernmental science-policy platform on biodiversity and ecosystem services
Bryant, R. L. (1998). Power, knowledge and political ecology in the third world: A review. *Progress in Physical Geography, 22*(1), 79–94.
Büscher, B., Fletcher, R., Brockington, D., Sandbrook, C., Adams, W. M., Campbell, L., ... & Shanker, K. (2017). Half-Earth or Whole Earth? Radical ideas for conservation, and their implications. *Oryx, 51*(3), 407–410.
Büscher, B., Fletcher, R., Brockington, D., Sandbrook, C., Adams, W. M., Campbell, L., Corson, C., Dressler, W., Duffy, R., Gray, N., Holmes, G., Kelly, A., Lunstrum, E., Ramutsindela, M., & Shanker, K. (2017a). Half-Earth or Whole Earth? Radical ideas for conservation, and their implications. *Oryx, 51*(3), 407–410.
Busscher, N., Parra, C., & Vanclay, F. (2020). Environmental justice implications of land grabbing for industrial agriculture and forestry in Argentina. *Journal of Environmental Planning and Management, 63*(3), 500–522.
Byron, N. (1997). International development assistance in forestry and land management: The process and the players. *The Commonwealth Forestry Review., 76*(1), 61–67.
Cabello, J., & Gilbertson, T. (2012). A colonial mechanism to enclose lands: A critical review of two REDD+-focused special issues. *Ephemera: Theory & Politics in Organization., 12*, 162–180.
CBS (2017). *National Population Report 2017*. Central Bureau of Statistics (CBS): Kathmandu, Nepal, 2017.
Cox, J.M. (2017). *To Kill a People: Genocide in the Twentieth Century*. Oxford University Press: Oxford, UK.
Dahal, D.R. (2003). Social composition of the population: caste/ethnicity and religion in Nepal. *Population monograph of Nepal, 1*, 87–135.
Environmental Statistics of Nepal. (2019). Central Bureau of Statistics (CBS) Kathmandu
Chao, S. (2012). *Forest peoples: numbers across the world* (p. 10). Forest Peoples Programme Moreton-in-Marsh.
Chaudhary, S., Uddin, K., Chettri, N., Thapa, R., & Sharma, E. (2022). Protected areas in the Hindu Kush Himalaya: A regional assessment of the status, distribution, and gaps. *Conservation Science and Practice, 4*(10), e12793.
Chételat, J., Kalbermatten, M., Lannas, K. S., Spiegelberger, T., Wettstein, J.-B., Gillet, F., Peringer, A., & Buttler, A. (2013). A contextual analysis of land-use and vegetation changes in two wooded pastures in the Swiss Jura mountains. *Ecology and Society, 18*(1), 16.
Chhetri, R., Yokying, P., Smith, A., Van Den Hoek, J., Hurni, K., Saksena, S., & Fox, J. (2023). Forest, agriculture, and migration: Contemplating the future of forestry and agriculture in the middle-hills of Nepal. *The Journal of Peasant Studies, 50*(1), 411–433.
Christoff, P. (2008). The Bali roadmap: Climate change, COP 13 and beyond. *Environmental Politics, 17*(3), 466–472.
CIFOR. (2014). Global Landscapes Forum Final Report 2013. Centre for International Forestry. Alone the side UNFCCC COP-19, Held 16–17 November 2013. Warsaw, Poland.
Clark, I. (2011). *Hegemony in international society*. Oxford University Press.
Colmey, J., Callahan, S., McGann, G., Monsieur, C., Enciso, A. S., Alsahi, H., Chandra, D., Garrett, L., Buckingham, K., & Abraham, S. (2020). Building a restoration movement. *Restoring the Earth-the next Decade: Unasylva No. 252-Vol. 71 2020/1, 252*(1), 27.
Constantin, C., Luminița, C., & Vasile, A. J. (2017). Land grabbing: A review of extent and possible consequences in Romania. *Land Use Policy, 62*, 143–150. https://doi.org/10.1016/j.landusepol.2017.01.001
CrossRoad. (2021). We need to protect and conserve 30% of the planet: but it has to be the right 30%. CrossRoad Blog. Open Letter for IUCN Members. https://www.iucn.org/crossroads-blog/202108/we-need-protect-and-conserve-30-planet-it-has-be-right-30. Retrieved 24 August, 2022.
Dawson, N., Coolsaet, B., & Martin, A. (2018). Justice and equity: Emerging research and policy approaches to address ecosystem service trade-offs. *Ecosystem services and poverty alleviation* (pp. 22–38). Routledge.
DeClerck, F. A. J., Koziell, I., Benton, T., Garibaldi, L. A., Kremen, C., Maron, M., Rumbaitis Del Rio, C., Sidhu, A., Wirths, J., Clark, M., Dickens, C., Estrada Carmona, N., Fremier, A.K., Jones, S.K.,Khoury, C.K., Lal, R., Obersteiner, M., Remans, R., Rusch, A., Schulte, L.A., Simmonds, J., Stringer, L., Weber, C., & Winowiecki, L. (2023). A whole earth approach to nature-positive food: biodiversity and agriculture. In *Science and innovations*

for food systems transformation (pp. 469–496). Cham: Springer International Publishing.

Deng, X., Li, Z., & Gibson, J. (2016). A review on trade-off analysis of ecosystem services for sustainable land-use management. *Journal of Geographical Sciences, 26*(7), 953–968. https://doi.org/10.1007/s11442-016-1309-9

Devkota, R. R. (2010). *Interests and power as drivers of community forestry: A case study of Nepal*: Universitätsverlag Göttingen.

Dhakal, B. (2014). The local environmental, economic and social tragedies of international interventions on community based forest management for global environmental conservation: A critical evaluation. *Open Journal of Forestry, 4*(01), 58.

Dhakal, B., & Adhikari, K. (2022). Policy problems and progressive solutions to halt increasing social harms on disadvantaged rural communities from current neocolonial land grabbing policy in Nepal: Insights and opinions. *Nepal Public Policy Review, 2*, 383–438.

Dhakal, B., Bigsby, H., & Cullen, R. (2010). Forests for food security and livelihood sustainability: Policy problems and opportunities for small farmers in Nepal. *Journal of Sustainable Agriculture, 35*(1), 86–115.

Dhakal, B., Bigsby, H., & Cullen, R. (2012). Socioeconomic impacts of public forest policies on heterogeneous agricultural households. *Environmental and Resource Economics, 53*, 73–95.

Dhakal, B., Chand, N., Shrestha, A., Dhakal, N., Karki, K. B., Shrestha, H. L., Bhandari, P. L., Adhikari, B., Shrestha, S. K., & Regmi, S. P. (2022a). How policy and development agencies led to the degradation of indigenous resources, institutions, and social-ecological systems in Nepal: Some insights and opinions. *Conservation, 2*(1), 134–173.

Dhakal, B., Chand, N., Shrestha, H. L., Shrestha, A., Dhakal, N., Adhikari, B., Shrestha, S. K., Karki, K. B., & Bhandari, P. (2022b). Paradoxes of aggravated vulnerability, marginalization, and peril of forest-based communities after increasing conservative forest and protected areas in Nepal: A policy lesson on land-based climate change mitigation. *World, 3*(3), 544–574.

Dhungana, S., Poudel, M., & Bhandari, T.S. (Eds). (2018). REDD+ in Nepal: Experiences from the REDD readiness phase. REDD Implementation Centre, Ministry of Forests and Environment, Government of Nepal.

Dissanayake, S., Jha, P., Adhikari, B., Bista, R., Bluffstone, R. A., Luintel, H., Martinsson, P., Paudel, N.S., Somanathan, E., & Toman, M. (2015). Community managed forest groups and preferences for REDD contract attributes: A choice experiment survey of communities in Nepal. *World Bank Policy Research Working Paper,* (7326).

DLSU. (2022). Land Use Map. Department of Land Survey (DLUS), Nepal Government. Available online: https://www.dos.gov.np/products-services. Accessed on May 21, 2022.

DNWC. (2022). Annual Report, series 2078/79, 2077/78, and 2076/77. Department of national park and wildlife conservation (DNWC). The ministry of forest and wildlife conservation. Kathmandu. Retrieved May 6, 2023, from https://dnpwc.gov.np/en/reports/

Dongol, Y., & Neumann, R. P. (2021). State making through conservation: The case of post-conflict Nepal. *Political Geography, 85*, 102327.

Down to earth. (2021). *In-Depth. Forests of global contention*. Retrieved from https://www.downtoearth.org.in/indepth/forests-of-global-contention-29899. Accessed on 23 December, 2020.

Eckholm, E. P. (1975). The deterioration of mountain environments: Ecological stress in the highlands of Asia, Latin America, and Africa takes a mounting social toll. *Science, 189*(4205), 764–770.

Edmonds, E. V. (2003). Development assistance and the construction of government-initiated community institutions. *Economic Development and Cultural Change, 51*(4), 897–928.

Edmundson, H. (2019). *Tales from the Himalaya–religion, science, politics, society*. Vajra Books Publisher.

Ellis, E. C., & Mehrabi, Z. (2019). Half earth: Promises, pitfalls, and prospects of dedicating half of earth's land to conservation. *Current Opinion in Environmental Sustainability, 38*, 22–30.

FAO. (2010). Global forest resources assessment 2010: Main report: Food and agriculture organization (FAO) of the United Nations.

FCPF. (2016). Annual progress report 2016. Forest carbon partnership facility (FCPF). The world bank groups, Washington DC. Retrieved 20 February, 2021, from https://www.forestcarbonpartnership.org/timeline

Fecofun. 2023. Partner organization. Federation of Community forestry users Nepal (FECOFUN). Retrieved May 06, 2023 from https://fecofun.org.np/partner-organisation/

Forest-Europe. (2020). FOREST EUROPE, 2020: State of Europe's Forests 2020. Paper presented at the *Ministerial Conference on the Protection of Forests in Europe—Liaison Unit Bratislava.*

Fox, J. M. (1987). Livestock ownership patterns in a Nepali village. *Mountain Research and Development, 7*(2), 169–172.

Gannon, P., Dubois, G., Dudley, N., Ervin, J., Ferrier, S., Gidda, S., MacKinnon, K., Richardson, K., Schmidt, M., & Seyoum-Edjigu, E. (2019). Editorial essay: An update on progress towards Aichi biodiversity target 11. *Parks, 25*, 7–18.

Garratt, K. J. (1981). *Sagarmatha National Park Management Plan.* Kathmandu, Nepal.

Ghimire, L. S. (2016). *Bureaucracy Emasculated by Foreign Aid*. Spotlight (Newspaper). 10(3). September 2, 2016.

Ghimire, C. P., Bruijnzeel, L. A., Lubczynski, M. W., & Bonell, M. (2014). Negative trade-off between changes in vegetation water use and infiltration recovery after reforesting degraded pasture land in the Nepalese Lesser Himalaya. *Hydrology and Earth System Sciences, 18*(12), 4933–4949.

Ghosh, A., Muller, B., Pizer, W. A., & Wagner, G. (2012). Mobilizing the private sector: Quantity-performance instruments for public climate funds. *Duke Environmental and Energy Economics Working Paper EE*, 12–09.

GLF. (2014). Global Landscape Forum: Donor Report 2014. 6–7 December 2014. Global Landscapes Forum (GLF), Lima Peru.

GLF. (2015). Donor and Partner Report of the meeting held on. 5–6 December 2015 Global Landscape Forum (GLF), Paris, France.

GoN (2010). Nepal Adaptation Programme of Action (NAPA) Government of Nepal. Ministry of Forests and Environment. Kathmandu Nepal.

GoN (2018) Nepal National REDD+ Strategy 2018. Government of Nepal. Ministry of Forests and Environment. Kathmandu Nepal.

Gong, P., Wang, J., Yu, L., Zhao, Y., Zhao, Y., Liang, L., Niu, Z., Huang, X., Fu, H., & Liu, S. (2013). Finer resolution observation and monitoring of global land cover: First mapping results with Landsat TM and ETM+ data. *International Journal of Remote Sensing, 34*(7), 2607–2654.

Graner, E. (1997) The political ecology of community forestry in Nepal. Verlag für Entwicklungspolitik, Saarbrucken, Germany.

Green, B. (1990). Agricultural intensification and the loss of habitat, species and amenity in British grasslands: A review of historical change and assessment of future prospects. *Grass and Forage Science, 45*(4), 365–372.

Griffiths, T., & Martone, F. (2008). *Seeing 'REDD'? Forests, climate change mitigation and the rights of indigenous peoples and local communities. Update for Poznan (UNFCCC COP 14)*. Forest Peoples Programme, Moreton-in-Marsh, United Kingdom.

Griffiths, T., & Martone, F. (2009). *Seeing' REDD'?: Forests, climate change mitigation and the rights of indigenous peoples and local communities*: Forest Peoples Programme.

Gupta, J., Matthews, R., Minang, P., van Noordwijk, M., Kuik, O., & van der Grijp, N. (2013). Climate change and forests: from the Noordwijk Declaration to REDD. In *Climate Change, Forests and REDD* (pp. 1–24). Routledge.

Gurung, B., Nelson, K. C., & Smith, J. L. D. (2009). Impact of grazing restrictions on livestock composition and husbandry practices in Madi valley, Chitwan national park. *Nepal. Environmental Conservation, 36*(4), 338–347. https://doi.org/10.1017/S0376892910000160

Gyamtsho, P. (2021). The decade to restore our planet. *Declaration on 2nd June 2021*. Retrieved from https://www.icimod.org/the-decade-to-restore-our-planet/. Accessed on September 27, 2021

Häberli, C. (2018). Potential conflicts between agricultural trade rules and climate change treaty commitments. *Häberli, Christian (2018). Potential conflicts between agricultural trade rules and climate change treaty commitments. The State of Agricultural Commodity Markets (SOCO).*

Hamilton, F. (1819). An Account of the Kingdom of Nepal: And of the Territories Annexed to this Dominion by the House of Gorkha (Vol. 10). Archibald Constable.

Haibach, H., & Schneider, K. (2013). The politics of climate change: Review and future challenges. Paper presented at the *climate change: International law and global governance.*

Hajjar, R., Engbring, G., & Kornhauser, K. (2021). The impacts of REDD+ on the social-ecological resilience of community forests. *Environmental Research Letters, 16*(2), 024001.

Heinen, J. T., & Kattel, B. (1992). Parks, people, and conservation: A review of management issues in Nepal's protected areas. *Population and Environment, 14*(1), 49–84.

Heinen, J. T., & Shrestha, S. K. (2006). Evolving policies for conservation: an historical profile of the protected area system of Nepal. *Journal of Environmental Planning and Management, 49*(1), 41–58.

Hilmers, T., Friess, N., Bässler, C., Heurich, M., Brandl, R., Pretzsch, H., Seidl, R., & Müller, J. (2018). Biodiversity along temperate forest succession. *Journal of Applied Ecology, 55*(6), 2756–2766.

Hoffman, S. J. (2012). Mitigating inequalities of influence among states in global decision making. *Global Policy, 3*(4), 421–432.

Howe, C., Suich, H., Vira, B., & Mace, G. M. (2014). Creating win-wins from trade-offs? Ecosystem services for human well-being: A meta-analysis of ecosystem service trade-offs and synergies in the real world. *Global Environmental Change, 28*, 263–275. https://doi.org/10.1016/j.gloenvcha.2014.07.005

Hrabovszky, J. P., & Miyan, K. (1987). Population growth and land use in Nepal "The Great Turnabout". *Mountain Research and Development*, 264–270.

ICIMOD. (2019). About REDD+ Initiative Retrieved from http://www.icimod.org/?q=22906. Accessed on December 19, 2019.

Ives, J. (2004). *Himalayan perceptions: Environmental change and the well-being of mountain peoples*. Routledge.

Ives, J. D., & Messerli, B. (1989). *The Himalayan dilemma: reconciling development and conservation*. Routledge.

Jana, S. (2007). Voices from the margins: Human rights crises around protected areas in Nepal. *Policy Matters, 15*.

Johnson, S. P. (1994). The earth summit: The United Nations conference on environment and development (UNCED). *VRÜ Verfassung Und Recht in Übersee, 28*(1), 134–135.

Joshi, M. D., & Joshi, C. (2022). Areas of species diversity and endemicity of Nepal. *Ecosphere, 13*(3), e3969.

Joshi, H., Naja, M., Srivastava, P., Gupta, T., Gogoi, M. M., & Suresh Babu, S. (2022). Long-term trends in black carbon and aerosol optical depth over the central Himalayas: Potential causes and implications. *Frontiers in Earth Science, 10*, 851444.

Kanel, K., & Shrestha, K. (2001). Tropical secondary forests in Nepal and their importance to local people. *Journal of Tropical Forest Science, 13*(4), 691–704.

Kang, S., Zhang, Y., Qian, Y., & Wang, H. (2020). A review of black carbon in snow and ice and its impact on the cryosphere. *Earth-Science Reviews, 210*, 103346.

Karky, B. S., & Skutsch, M. (2010). The cost of carbon abatement through community forest management in Nepal Himalaya. *Ecological Economics, 69*(3), 666–672.

Kashwan, P., Mudaliar, P., Foster, S. R., & Clement, F. (2021a). Reimagining and governing the commons in an unequal world: A critical engagement. *Current Research in Environmental Sustainability, 3*, 100102. https://doi.org/10.1016/j.crsust.2021.100102

Kashwan, P., Duffy, R. V., Massé, F., Asiyanbi, A. P., & Marijnen, E. (2021b). From racialized neocolonial global conservation to an inclusive and regenerative conservation.

Environment: Science and Policy for Sustainable Development, 63(4), 4–19.

KC, B., & Race, D. (2020). Outmigration and land-use change: A case study from the middle hills of Nepal. *Land, 9*(1), 2.

Kingston, C., & Caballero, G. (2009). Comparing theories of institutional change. *Journal of Institutional Economics, 5*(2), 151–180.

Kumar, D., Pfeiffer, M., Gaillard, C., Langan, L., Martens, C., & Scheiter, S. (2020). Misinterpretation of Asian savannas as degraded forest can mislead management and conservation policy under climate change. *Biological Conservation, 241*, 108293.

LAHURNIP. (2020). Violation of Indigenous Peoples' Human Rights in Chitwan National Park of Nepal. Fact Finding report 2020. Lawyers' Association for Human Rights of Nepalese IPs (LAHURNIP) and National Indigenous Women Federation (NIWF).

Lambin, E. F., & Meyfroidt, P. (2011). Global land use change, economic globalization, and the looming land scarcity. *Proceedings of the National Academy of Sciences, 108*(9), 3465–3472.

LEAF. (2023). LEAF coalition IPLC engagement strategy. Lowering emissions by accelerating forest finance (LEAF). https://leafcoalition.org/resources/ Downloaded on 3 July 2023.

Lewis, S. L., Wheeler, C. E., Mitchard, E. T., & Koch, A. (2019). Restoring natural forests is the best way to remove atmospheric carbon. *Nature, 568*(7750), 25–28.

Lucas, A. (2021). Investigating networks of corporate influence on government decision-making: The case of Australia's climate change and energy policies. *Energy Research & Social Science, 81*, 102271. https://doi.org/10.1016/j.erss.2021.102271

Luintel, H., Bluffstone, R. A., & Scheller, R. M. (2018). The effects of the Nepal community forestry program on biodiversity conservation and carbon storage. *PLoS ONE, 13*(6), e0199526.

Macdonald, D. W., Chiaverini, L., Bothwell, H. M., Kaszta, Ż, Ash, E., Bolongon, G., Can, Ö. E., Campos-Arceiz, A., Channa, P., Clements, G. R., Hearn, A. J., Hedges, L., Htun, S., Kamler, J. F., Macdonald, E. A., Naing, H., Moore, J., Onuma, M., Rasphone, A., … Cushman, S. A. (2020). Predicting biodiversity richness in rapidly changing landscapes: climate, low human pressure or protection as salvation? *Biodiversity and Conservation, 29*(14), 4035–4057. https://doi.org/10.1007/s10531-020-02062-x

Mack, G., Walter, T., & Flury, C. (2013). Seasonal alpine grazing trends in Switzerland: Economic importance and impact on biotic communities. *Environmental Science & Policy, 32*, 48–57.

Malkamäki, A., D'Amato, D., Hogarth, N. J., Kanninen, M., Pirard, R., Toppinen, A., & Zhou, W. (2018). A systematic review of the socio-economic impacts of large-scale tree plantations, worldwide. *Global Environmental Change, 53*, 90–103. https://doi.org/10.1016/j.gloenvcha.2018.09.001

Maraseni, T. N., Poudyal, B. H., Rana, E., Khanal, S. C., Ghimire, P. L., & Subedi, B. P. (2020). Mapping national REDD+ initiatives in the Asia-Pacific region. *Journal of Environmental Management, 269*, 110763.

McNeely, J. A., & Miller, K. R. (1983). IUCN, national parks, and protected areas: Priorities for action. *Environmental Conservation, 10*(1), 13–21.

Metz, J. J. (1995). Development in Nepal: Investment in the status quo. *GeoJournal, 35*(2), 175–184.

MFSC. (2016). Conservation Landscapes of Nepal. Ministry of Forests and Soil Conservation (MFSC), Kathmandu.

MFSO. (2015). Nepal Biodiversity Strategy and Action Plan 2014–2020. Ministry of Forests and Soil Conservation [MFSO], Singha Durbar, Kathmandu, Nepal.

Miya, A. (2021b). Agreement to bring 36 billion in 4 years by selling carbon (English version of Nepali news). Kantipur. 11 November. https://ekantipur.com/news/2021/11/04/163598897646965776.html. Retrieved on 28 May 2023.

Minya, A. (2021a). 479 Forest fires in a single day. eKantipure 27 March 2021. https://ekantipur.com/news/2021/03/26/16167199233075910.html. Downloaded on July12, 2021. *Ekantipure*.

Main Report. Forestry Sector Master Plan 1988a. Ministry of Forest Kathmandu (MOF), Kathmandu, Nepal.

MoF. (1988b). Forest development plan for the supply of main forest products. Forestry sector master plan 1988. Ministry of forest and watershade management Nepal (MoF). Kathmandu.

MoF. (2022). Report on Nepal's foreign affairs (2020–2021). International economic coopera-tion coordination division, ministry of finance Nepal. Ministry of finance (MoF). Kathmandu.

MoFSC. (2009). Nepal forestry outlook study working paper series: Working Paper No. APFSOS II/WP/2009/05. Ministry of Forests and Soil Conservation (MoFSC) Singha Durbar, Kathmandu, Nepal.

MoFSC. (2015a). Study of forest carbon ownership in Nepal. REDD implementation centre, ministry of forests and soil conservation (MoFSC) Nepal.

MOFSC. (2015b). Strategy and Action Plan 2015–2025, Terai Arc Landscape. Ministry of Forest and Soil Conservation [MOFSC]. Kathmandu Nepal. In: *Kathmandu: Ministry of forest and soil conservation*.

Mortari, L. (2015). Reflectivity in research practice: An overview of different perspectives. *International Journal of Qualitative Methods, 14*(5), 1609406915618045.

MSFP. (2016). Forestry sector strategy (2016–25): Government of Nepal, ministry of forests and soil conservation, multi stakeholder forestry programme (MSFP), a joint venture project of UK, Finland and Swiss government.

MSFP. (2011). Project document of multi stakeholder forestry programme (MSFP). MSFP Kathmandu Nepal.

Moteki, N. (2023). Climate-relevant properties of black carbon aerosols revealed by in situ measurements: A review. *Progress in Earth and Planetary Science, 10*, 12.

Nègre, F. (2022). The European union and forests. Fact sheets on the European union. European Parliament. https://www.europarl.europa.eu/factsheets/en/sheet/105/the-european-union-and-forests. Downloaded on July 8, 2022

Novosad, P., & Werker, E. (2019). Who runs the international system? Nationality and leadership in the United Nations secretariat. *The Review of International Organizations, 14*(1), 1–33. https://doi.org/10.1007/s11558-017-9294-z

Agriculture Development Strategy (ADS). (2014). National Planning Commision [NPC]. Kathmandu Nepal.

Nuberg, I., Shrestha, K., & Bartlett, A. (2019). Pathways to forest wealth in Nepal. *Australian Forestry, 82*(sup1), 106–120.

OECD, A. (2020). Comprehensive Overview of Global Biodiversity Finance. Organization for Economic Cooperation and Development.

Ojha, H., & Hall, A. (2023). Transformation as system innovation: Insights from Nepal's five decades of community forestry development. *Innovation and Development, 13*(1), 109–131.

Ojha, H. R., Khatri, D., Shrestha, K. K., Bushley, B., & Sharma, N. (2013). Carbon, community and governance: Is Nepal getting ready for REDD+? *Forests, Trees and Livelihoods, 22*(4), 216–229.

Orlove, B. S., & Guillet, D. W. (1985). Theoretical and methodological considerations on the study of mountain peoples: Reflections on the idea of subsistence type and the role of history in human ecology. *Mountain Research and Development, 5*(1), 3–18.

Osborne, T., Brock, S., Chazdon, R., Chomba, S., Garen, E., Gutierrez, V., lave, R., Lefevre, M., & Sundberg, J. (2021). The political ecology playbook for ecosystem restoration: Principles for effective, equitable, and transformative landscapes. *Global Environmental Change, 70*, 102320. https://doi.org/10.1016/j.gloenvcha.2021.102320

Palmer, C. (2011). Property rights and liability for deforestation under REDD+: Implications for 'permanence' in policy design. *Ecological Economics, 70*(4), 571–576.

Parola, G. (2021). The dangerous rise of land grabbing through climate change mitigation policies: The examples of biofuel and REDD+. *Revista De Estudos Constitucionais, Hermenêutica e Teoria Do Direito, 12*(3), 568–582.

Paudel, K., Potter, G. R., & Phelps, J. (2020). Conservation enforcement: Insights from people incarcerated for wildlife crimes in Nepal. *Conservation Science and Practice, 2*(2), e137.

Phelps, J., Friess, D. A., & Webb, E. L. (2012). Win–win REDD+ approaches belie carbon–biodiversity trade-offs. *Biological Conservation, 154*, 53–60.

Pike, F. (2021). *Forests, logging and climate change. Environment*. Retrieved from https://independentaustralia.net/environment/environment-display/forests-logging-and-climate-change,12668. Downloaded on April 2, 2021.

Plumb, S. T., Nielsen, E. A., & Kim, Y.-S. (2012). Challenges of opportunity cost analysis in planning REDD+: A Honduran case study of social and cultural values associated with indigenous forest uses. *Forests, 3*(2), 244–264.

Pokhrel, M. (2021). Will Nepal Ever Be Paid for Saving Trees? *Lots of Pledges in Glasgow, but Doubtful If They Will Actually Bring Nepal Cash for Protecting Forests. Times.* November 7. Available online: https://www.nepalitimes.com/latest/will-nepal-ever-be-paid-for-saving-trees/ (Accessed on April 8, 2022).

Poudel, M., Thwaites, R., Race, D., & Dahal, G. R. (2015). Social equity and livelihood implications of REDD+ in rural communities–a case study from Nepal. *International Journal of the Commons, 9*(1), 177.

Rai, D. R., & Dangal, M. R. (2021). The effect of migration on family in Nepal: A review on the family structure, livelihood, education, aging parents, reproductive health and marital relationship. *Open Journal for Anthropological Studies, 5*(2), 49–60.

Rai, R. K., Nepal, M., Karky, B. S., Timalsina, N., Khadayat, M. S., & Bhattrai, N. (2022). Opportunity costs of forest conservation in Nepal. *Frontiers in Forests and Global Change*, *5*(1–9), 857145.

Rawal, R. S., & Dhar, U. (2001). Protected area network in Indian Himalayan region: Need for recognizing values of low profile protected areas. *Current Science, 81*(2), 175–184.

Reyes, R., & Nelson, H. (2014). A tale of two forests: Why forests and forest conflicts are both growing in Chile. *International Forestry Review, 16*(4), 379–388.

RIC. (2015). *Economic model to forecast future rates of deforestation and forest degradation in Nepal. REDD implementation centre (RIC), The ministry of forests and soil conservation of Nepal*. The report was prepared by Arbonaut, Winrock International, and Green Governance Nepal.

Robbe, E. (1954). Report to the Government of Nepal on Forestry. ETAP Report No. 209. FAO.

Robbins, P. (2019). *Political ecology: A critical introduction*. John Wiley & Sons.

Robertson, B., & Pinstrup-Andersen, P. (2010). Global land acquisition: Neo-colonialism or development opportunity? *Food Security, 2*(3), 271–283.

Rodríguez, J. P., Beard, T. D., Jr., Bennett, E. M., Cumming, G. S., Cork, S. J., Agard, J., Dobson, A. P., & Peterson, G. D. (2006). Trade-offs across space, time, and ecosystem services. *Ecology and Society, 11*(1), 14.

Rüegg, J., Moos, C., Gentile, A., Luisier, G., Elsig, A., Prasicek, G., & Otero, I. (2022). An approach to evaluate mountain forest protection and management as a means for flood mitigation. *Frontiers in Forests and Global Change*, 5(1–11), 785740.

Ruseva, T., Hedrick, J., Marland, G., Tovar, H., Sabou, C., & Besombes, E. (2020). Rethinking standards of permanence for terrestrial and coastal carbon: Implications for governance and sustainability. *Current Opinion in Environmental Sustainability, 45*, 69–77.

Satyal, P., Corbera, E., Dawson, N., Dhungana, H., & Maskey, G. (2019). Representation and participation in formulating Nepal's REDD+ approach. *Climate Policy, 19*(sup1), S8–S22.

Schaafsma, M., & Bartkowski, B. (2021). Synergies and trade-offs between ecosystem services. In W. Leal Filho, A. M. Azul, L. Brandli, A. Lange Salvia, & T. Wall (Eds.), *Life on land.* Springer.

Sharma, B. P., Shyamsundar, P., Nepal, M., Pattanayak, S. K., & Karky, B. S. (2017). Costs, cobenefits, and community responses to REDD+ a case study from Nepal. *Ecology and Society, 22*(2), 14.

Schneck, J., Panadero, V. L., & De Ridder, B. (2020). The restoration initiative: A new model for partnerships on restoration. *Restoring the Earth-the next Decade: Unasylva No. 252-Vol. 71 2020/1, 252*(1), 3.

Schroeder, R. F. (1985). Himalayan subsistence systems: Indigenous agriculture in rural Nepal. *Mountain Research and Development, 1*, 31–44.

Semieniuk, G., & Yakovenko, V. M. (2020). Historical evolution of global inequality in carbon emissions and footprints versus redistributive scenarios. *Journal of Cleaner Production., 264*, 121420. https://doi.org/10.1016/j.jclepro.2020.121420

Shahbandeh, M. (2021). Average farm size in the United States from 2000 to 2020. Statista. Retrieved from https://www.statista.com/statistics/196106/average-size-of-farms-in-the-us-since-2000/. Downloaded on April 24, 2021.

Shrestha, K. K., & McManus, P. (2008). The politics of community participation in natural resource management: Lessons from community forestry in Nepal. *Australian Forestry, 71*(2), 135–146.

Shrestha, N. (1990). Landlessness and migration in Nepal; westview special studies on social, political, and economic development. In *Westview Press*.

Shrestha, S., & Dhakal, S. (2019). An assessment of potential synergies and trade-offs between climate mitigation and adaptation policies of Nepal. *Journal of Environmental Management, 235*, 535–545.

Shrestha, U. B., Shrestha, S., Chaudhary, P., & Chaudhary, R. P. (2010). How representative is the protected areas system of Nepal? *Mountain Research and Development, 30*(3), 282–294.

Sinha, D. R. (2011). Betrayal or 'Business as Usual'? Access to forest resources in the Nepal Terai. *Environment and History, 17*(3), 433–460.

Smith, P. (2018). Managing the global land resource. *Proceedings of the Royal Society b: Biological Sciences, 285*(1874), 20172798.

Sovacool, B. K., Turnheim, B., Hook, A., Brock, A., & Martiskainen, M. (2021). Dispossessed by decarbonisation: Reducing vulnerability, injustice, and inequality in the lived experience of low-carbon pathways. *World Development, 137*, 105116.

Springer, J., & Almeida, F. (2015). Protected areas and the land rights of Indigenous peoples and local communities: Current issues and future agendas. *Washington: Rights and Resources Initiative, 23*(1), 13.

Stanturf, J. A., & Mansourian, S. (2020). Forest landscape restoration: State of play. *Royal Society Open Science, 7*(12), 201218.

Stannard, D. E. (1993). American holocaust: The conquest of the new world. Oxford University Press.

Takacs, D. (2014). Environmental democracy and forest carbon (REDD+). *Envtl. l., 44*, 71.

Thévenin, C., Morin, A., Kerbiriou, C., Sarrazin, F., & Robert, A. (2020). Heterogeneity in the allocation of reintroduction efforts among terrestrial mammals in Europe. *Biological Conservation, 241*, 108346.

Thompson, D. F. (2018). Theories of institutional corruption. *Annual Review of Political Science., 21*(1), 495–513.

Thoms, C. A. (2007). Constituting forest communities in the hills of Nepal. *The International Journal of Biodiversity Science and Management, 3*(2), 115–125.

Thoms, C. A. (2008a). Community control of resources and the challenge of improving local livelihoods: A critical examination of community forestry in Nepal. *Geoforum, 39*(3), 1452–1465.

Thoms, C. A. (2008b). Conservation success and livelihood failure. *Policy Matter, 14*, 169–179.

Thoms, C. A., Karna, B. K., & Karmacharya, M. B. (2006). Limitations of leasehold forestry for poverty alleviation in Nepal. *Society and Natural Resources, 19*(10), 931–938.

Timilsina, G. R. (2021). Financing climate change adaptation: International initiatives. *Sustainability, 13*(12), 6515.

TREES. (2021). THE REDD+ ENVIRONMENTAL EXCELLENCE STANDARD (TREES), VERSION 2.0., *ART SecretariatWinrock International, Virginia, USA*., V2. https://www.artredd.org/wp-content/uploads/2021/12/TREES-2.0-August-2021-Clean.pdf.

Tulone, A., Galati, A., Pecoraro, S., Carroccio, A., Siggia, D., Virzì, M., & Crescimanno, M. (2022). Main intrinsic factors driving land grabbing in the African countries' agro-food industry. *Land Use Policy, 120*, 106225. https://doi.org/10.1016/j.landusepol.2022.106225

Uddin, K., Shrestha, H. L., Murthy, M., Bajracharya, B., Shrestha, B., Gilani, H., Pradhan, S., & Dangol, B. (2015). Development of 2010 national land cover database for the Nepal. *Journal of Environmental Management, 148*, 82–90.

UFS. (2022b). Does the Forest Service Permit Livestock Grazing on National Forest System Lands? US Forest Service (UFS), Available online: https://www.fs.fed.us/rangeland-management/grazing/allowgrazing.shtml (Accessed on June13, 2022).

UMN (2023) Who We Work With. United Mission To Nepal UMN). Kathmandu. https://www.umn.org.np/who-we-work

UNCCD. (2022). *The Global Land Outlook, second edition.* United Nations Convention to Combat Desertification (UNCCD). Bonn. UNCCD_GLO2_low-res_2.pdf. Retrieved May 12, 2022.

UNEP-and-WCMC. (2011). Sagarmatha National Park Nepal. United National Environmental Program (UNEP). World Conservation Monitoring Centre (WCMC). Retrieved from http://www.thesalmons.org/lynn/wh-wcmc/Nepal%20-%20Sagarmatha.pdf. Accessed on June 27, 2021.

Veldman, J. W., Aleman, J. C., Alvarado, S. T., Anderson, T. M., Archibald, S., Bond, W. J., Boutton, T. W., Buchmann, N., Buisson, E., & Canadell, J. G. (2019). Comment on "the global tree restoration potential." *Science, 366*(6463), eaay7976.

Veldman, J. W., Overbeck, G. E., Negreiros, D., Mahy, G., Le Stradic, S., Fernandes, G. W., Durigan, G., Buisson, E., Putz, F. E., & Bond, W. J. (2015). Where tree planting and forest expansion are bad for biodiversity and ecosystem services. *BioScience, 65*(10), 1011–1018. https://doi.org/10.1093/biosci/biv118

Walker, P. A. (2006). Political ecology: Where is the policy? *Progress in Human Geography, 30*(3), 382–395.

Ward, M., Tulloch, A. I., Radford, J. Q., Williams, B. A., Reside, A. E., Macdonald, S. L., Mayfield, H. J., Maron, M., Possingham, H. P., Vine, S. J., O'Connor, J. L., Massingham, E. J., Greenville, A. C., Woinarski, J. C. Z., Garnett, S. T., Lintermans, M., Scheele, B. C.,

Carwardine, J., Nimmo, D. G., … Watson, J. (2020). Impact of 2019–2020 mega-fires on Australian fauna habitat. *Nature Ecology & Evolution, 4*(10), 1321–1326.

Wester, P., Mishra, A., Mukherji, A., & Shrestha, A. B. (2019). *The Hindu Kush Himalaya assessment: Mountains, climate change, sustainability and people*. Springer Nature.

White, R. M. (1979). The World climate conference: Report by the conference chairman. *WMO Bulletin, 28*(3), 84–91.

WMO. (1979). *Proceedings of the World Climate Conference*. Geneva, February *WMO-No. 537*

Woodhouse, E., Bedelian, C., Barnes, P., Cruz-Garcia, G.S., Dawson, N., Gross-Camp, N., Homewood, K., Jones, J. P. G., Martin, A., Morgera, E., & Schreckenberg, K. (2022). Rethinking entrenched narratives about protected areas and human wellbeing in the Global South. *UCL Open Environment, 16*(4), e050.

World-Bank. (2021a). *Global Development Indicators: Open Online Data* World Bank Accessed December 24, 2021a.

World-Bank. (2021b). Nepal and World Bank Sign Innovative Financing Agreement on Forests and Climate Change for Building Back Greener.

WRI (1985). *Tropical Forests: A Call for Action* . (Report of an International Task Force convened by the World Resources Institute, the World Bank, and the United Nations Development Programme.) Three Parts: The Plan, Case Studies, and Country Investment Profiles. World Resources Institute (WRI).

WWF, MOF_Nepal , and GEF,. (2019). Integrated Landscape Management to Secure Nepal's Protected Areas and Critical Corridors. WWF/GEF Project 9437. Retrieved from https://www.thegef.org/project/integrated-landscape-management-secure-nepal-s-protected-areas-and-critical-corridors. Accessed on January 24, 2021

Yang, B., & He, J. (2021). Global land grabbing: A critical review of case studies across the world. *Land, 10*(3), 324.

Yang, J., Kang, S., Chen, D., Zhao, L., Ji, Z., Duan, K., Deng, H., Tripathee, L., Du, W., Rai, M., & Yan, F. (2022). South Asian black carbon is threatening the water sustainability of the Asian water tower. *Nature Communications, 13*(1), 7360.

Yonzon, P. B., & Hunter, M. L., Jr. (1991). Conservation of the red panda *Ailurus fulgens*. *Biological Conservation, 57*(1), 1–11.