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How Policy and Development Agencies Led to the Degradation of Indigenous Resources, Institutions, and Social-Ecological Systems in Nepal: Some Insights and Opinions

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Abstract: Rapid growth of environmental problems, economic volatilities, and social changes have increased the scopes of adopting environmentally friendly and resilient production systems. Regenerative farming and forestry practices are such systems appropriate for mountain communities in Nepal. They had performed better with indigenous resources, institutions, and social-ecological systems. Unfortunately, the assets have been degraded to extinction, mainly commencing works of national and international development agencies. Consequently, regenerative practices are disappearing. Despite appeals and commitments, the degradations of the assets are not halted and reversed. This study used secondary sources of data and work experiences and explained the working faults of the external agencies involved in the agriculture, forestry, and wildlife sectors. It elucidated that most regenerative practices had sustained well in forest and farm resource-integrated production systems and a modest degree of natural and human inputs and production environments. The production environments degraded when the government agencies provided foreign agencies opportunities to be involved actively in policy formulation and implementation of agriculture and forestry-related sectors. The foreign agencies meddled in the national policies and community practices and modified the production environments for their interests and benefits. They intervened in policies and local communities to practice a farming system based on extremely human-made and imported inputs and institutions and to manage forest-related resources in extremely intact natural systems. In the policy discourses and decisions, the farming inputs, practices, and institutions popularly practiced in developed countries are considered superior whereas the indigenous ones are considered inferior. Agricultural plans and policies have overvalued flash yield or other direct returned and undervalued environmental friendliness, indirect economic benefits, and social advantages to prioritize support of the government and other agencies. The introduced farming inputs and institutions displaced or hampered the indigenous ones. The foreign agencies also meddled in forest policies and practices of the country to address environmental and economic problems of developed countries which resulted in adverse impacts on the indigenous assets. They intervened in the resource management policies with financial and technical inputs to destroy some of the assets and make the forest-related resource management that results in better benefits (offsetting GHG emission, enhancing tranquility and serenity of recreational sites, and potentially expanding agricultural markets) to the people of developed

countries. This study has explained how the officials and experts of both government and foreign agencies abused and misused some strategic tactics and overused, poorly used and disused, others in their work process to address their self-centered interests and problems. In essence, intentional destructive interventions of the policy and development agencies have resulted in degradation to the extinction of the indigenous assets in the communities.

Keywords: mountain communities; influencing tactics; prosumer; resilient; regenerative forestry; agriculture; strategy theory; colonization; climate-smart farming

1. Introduction

Currently occurring rapid changes in social, political, economic, and environmental systems have increased some critical risks and uncertainties for food security and social wellbeing for vulnerable communities [1,2]. Due to naturally inherited attributes, these problems can be resolved little by advancing knowledge and technology, improving political measures, expanding social networks, and changing social values [2]. The humanitarian horror situation created by COVID-19 implies that the solutions to some problems cannot be found and delivered instantly, even in united global efforts. The inheritance of resource limitations, time requirements, and socio-political inertia constrain for instantly delivering solutions to such problems [3]. These gloomy situations have urged the world to compromise modern risky activities with even high returns and practice some resilience measures with even moderate returns. Here, resilience is considered the capability of an ecological system, social system, individual, community, or nation to tolerate or sustain and cope with recurring adverse conditions. It also accounts for the capability of adapting, reviving, and ultimately transforming into satisfactorily functioning conditions in a timely and efficient manner after exposure to one or multiple adverse conditions [4]. These measures are crucial for Nepali mountain communities that are institutionally and geo-ecologically vulnerable. Promoting such vital measures requires in-depth studies on barriers to practice such locally feasible measures.

Development agencies suggested managing livelihoods and other economic activities with locally available regenerative resources that can be reliable safety nets for vulnerable communities in such unpredicted crises. The measure is termed a nature-based solution [5–9]. It is often called an agroecological approach [10]. Indigenous farming and forestry are regenerative in characteristics. They are evolved in Nepal with millennium-long community practices in local geo-ecological conditions [11–13]. The practices are based on local experiences and simple knowledge. The mountain communities practiced them for easing adaptation in agro-climatically and geo-ecologically harsh and sensitive conditions [14]. The literature state that many developing societies are still advantaged from such indigenous practices, especially for coping with stresses and alleviating other problems in extremely adverse socio-political situations and natural disasters [14]. The community can practice them simultaneously with economically efficient modern production systems [15]. These practices are crucial for promoting the economic and food security of mountain communities, which require revitalizing the unique complemented linkages between the resources of farmland and forestland as well as upper-hill or alpine and lower-hill or transalpine regions. The key elements of regenerative practices in the mountain community context are indigenous resources, social-ecological systems, and institutions [15].

Unfortunately, these invaluable indigenous assets have been degraded to extinction [15,16]. The growing complexities of induced institutions have hindered opportunities of using some of them. The loss of the community assets intensified, mainly commencing active interventions of national and international agencies in natural resource sectors [17,18]. The harms are greater and have higher intensity in the communities where international agencies worked more intensively [19,20]. The phenomena of functioning indigenous assets

that are developed by the community are generally simple to understand. Scientists working in the field can explain them with knowledge of common sense. Some international organizations with rich resources and expertise are working for Nepal with the promise of providing quality scientific knowledge-based services to alleviate such challenging problems [16,21]. However, the degradation of the indigenous assets has not been halted and reversed despite numerous appeals and commitments of both national and international agencies actively working in this field [6,15,16]. Recently, the policy formulation and implementation support that international agencies provided to Nepal are suspicious and could be challenged by theories of sciences. The authors perceived more threats of loss of the indigenous assets under current international environmental conservation policy initiatives and works of international agencies [22–27]. These issues motivated the authors to make a critical investigation on the problems vested with the agencies.

Previous studies provided many explanations of degrading indigenous resources, institutions, and systems. Common explanations are (a) policy change; (b) new technology and knowledge; (c) economic changes including market demand and infrastructure development; (d) awareness or social value change; (e) ecological changes; and (f) land users' behavior and motivation [6,15,16,28]. The studies looked at the asset loss problems mostly in general and considered repercussions. Intentional roles of the external agencies and specifically in the mountain context of Nepal were not investigated critically and in detail.

Considering the study's scope, this study aimed to critically assess work faults of the external agencies and answered the following crucial policy questions: What are critical problems in work activities or processes of the external agencies that resulted in the loss of the indigenous assets of agriculture and forestry-related sectors? What are the primary factors driving the agencies to work against the indigenous assets? A detailed literature review in the next section provides a theoretical foundation to determine relevant testable hypotheses for answering the above questions. The rest of this paper is organized based on the structure of standard scientific papers.

2. The Research Model

2.1. Literature Review: Foundation of the Research Model

Social and environmental problems caused by service providers are explained in many theories: the negligence theory, self-interest theory, x theory, and principal-agent theory [28–30]. These theories explain self-centered interests and behavioral problems vested in service providers, which result in harm to the parties who were supposed to be favored. The interests and behavior of the agents are considered to be counterproductive. The principal-agent theory explains bad or suboptimal outcomes for the principal result from the misuse of delegated authority by the authority-taking agent [29,30]. The theory assumes that principals, generally referring to the public, have limited ability to perform the jobs themselves. Some agencies, generally referred to as public service agencies, possess special expertise to perform these jobs better in exchange for some rewards or payments. The work agreement between principals and agencies is expected to benefit both parties mutually. It is a universal understanding and expectation that the service-providing agencies work with their best efforts and explore, evaluate, and identify the best policies and implementation tactics to result in better outcomes for customers or principals [29,30]. In real life, both principals and agents seek to maximize their gains [30]. However, the expertise and working opportunity give the agent strategic advantages that the principals can little control. The agents can use the opportunity and work in their self-interest with guile [31]. The theory does not consider unintentional reasons (information limitation, ignorance, and other causes out of their control) to result in suboptimal outcomes [32–34].

This principal-agent theory explains only the phenomena of making extra personal gain while providing services to others. In the current human resource globalization context, the agents may be motivated to achieve gains for personal and home countries while working for principals. If the agent seeks to use this opportunity to obtain more

benefits to their home countries, the problem can be better explained in the political ecology theory [32].

The literature stated that socio-politically powerful groups can strategically block resource owners to use their own's resources or following better practices for vested interests [35,36]. Specifically, international hegemony theory postulates that such social groups or countries often use non-military force or other non-coercive measures to meddle in government decisions or social behaviors of other groups or countries and reap benefits from them [35]. The dominating society can use persuasive means, ideology, or other socially constructed values to mediate the decisions of oppressed society [37]. The strategic tactics can make the actors successful to get the political legitimacy of their interventions for fulfilling vested interests. Metz (1995) stated that international agencies with vested interests colluded with public bureaucrats for their mutual benefits, and this resulted in the marginalization of local communities [38]. The strategic measures subjugate and places subordinated groups or minorities in the psychosocial state for accepting values or ideology of the strategic groups despite suffering [39].

Some social theories explain that goal-seeking agencies use strategies to achieve their interests [40]. The strategic tools were traditionally practiced in the military field. Sun Tzu, a Chinese military general, is considered a pioneering strategist. The tools are nowadays followed in business and other fields [41]. The application of tactics on strategic points directs results towards desired goals [42].

The modern theory of strategy refers to an updated plan and tactics based on achieved progress and emerging situations instead of following originally outlined paths and activities. According to Mintzberg (1987), a good strategy consists of a plan, ploy, pattern, position, and perspective [43]. A simple idea of strategy is using strength against weakness. A good strategy creates strength in the action process. The tactics are a series of actions employed to accomplish strategy [44,45]. According to Freedman (2015), popular basic tactics include speed actions, smart response, maneuvers, ruses, feints, and deceit [46]. The key importance of tactics is to overcome disruptions and thwart actions and other obstacles in achieving strategic objectives. Strategic agents achieve their goals effectively by placing context-based tactics [43]. Implementing tactics requires the purposeful design of useful actions and calculating potential disruptions [45].

One of the popular tactics used to achieve a challenging goal is influencing the decision behaviors of targeted individuals, groups, or agencies [47]. An influence theory posits that agents with deliberated changing intention can substantially influence the attitudes, beliefs, and related actions or behaviors of targeted groups to achieve their goals. It is popularly considered an induced change. According to Kelman's (1958) social influence theory, people make substantial changes in their decisions in response to social situations created in the community or enforced by legitimate or other strategic agencies [47]. The people may accept the change through three-step processes: compliance, identification, and internalization. It means that they accept external influence to obtain a favorable reaction, gain specific rewards, or avoid conflict.

Many tactics can influence the decision behaviors of others. Yolk et al. (2008) categorize them as rational persuasion, inspirational appeals, appraising (making appealing to follow), making coalition or collective effort, and collaborative work or participation [48,49]. The other category includes ingratiation (praising or uplift), legitimating (authoritative force), pressure, deal (exchange), personal appeals or asking a favor, and consultation (buy others' supports). The effectiveness of the tactics varies with the context of influencing. The choice of the tactics depends on physical, moral, emotional, and mental tenets [48–50].

The literature explains the application of some strategic tactical approaches in the natural resources management field. They are applied to influence the decision-making of farmers, forest users, and water resource users and to achieve policy goals. For example, De Brauw et al. (2018) considered awareness (motivational) education, free production materials, and technical training as adoption strategies that are followed to make farmers adopt genetically modified crops [33]. Some studies considered assurance of success,

performance demonstration, participatory experimentation, government subsidies, and bank loans as strategies [51–53]. Studies reported media campaigns, social marketing, social pressures, and working through affiliated organizations on similar concepts [54]. Baynham-Herd et al. (2018) studied works of conservation field and identified strategic interventions in 10 areas: technical, cognitive, economic, enforcement, stakeholder use, and active opposition [37]. The others are resource use, environment change, wildlife control, and indirect damage. However, the terms “strategy” and “tactics” are confusingly used in the literature. The old saying “think strategically and act tactically” helps to clarify their conceptual differences. Sun-Tzu stated that people can notice tactics but not strategies [55]. Intervening agencies might have practiced many other formal and informal tactics for pursuing natural resource managers or users. However, there was no study explicitly focused on intervention tactics of development agencies that resulted in degradation to loss of indigenous resources, social-ecological systems, and institutions.

Some other political ecology literature stated that socio-politically powerful vested interest groups may have strategically blocked others in using some resources or practices [35,36,39,56,57]. Specifically, international hegemony theory postulates that vested interest countries tactically use non-military force, ideology, socially constructed values, or other non-coercive measures to meddle policy decisions and societies’ behaviors of other countries to reap benefits from them [35,37,39,57]. The strategies make the vested interest actors succeed to obtain political legitimacy of reaping socially unfair benefits from other countries [56]. The strategic power subjugates subordinated groups or minorities in the psychosocial state to accept values or ideologies of the strategic groups despite suffering [35,39,57]. Nowadays, powerful countries have followed such strategic approaches to exploit other societies or countries [37–39,57].

2.2. Specification of the Research Model Based on the Literature Review

This study hypothesized that counterproductive roles and services of the government and international development agencies resulted in the continual degradation of indigenous assets. The relationships of the problem phenomena are diagrammatically illustrated in Figure 1. Rural communities are the principal beneficiaries and custodians of indigenous assets of agriculture and community forestry resources. The government is assumed to make policies and work best for the communities. Politicians and cabinets play only the role of legitimizing the formulated policy suggested by technocrats (public service agents) due to the requirement of dealing with many complex scientific and technical matters [57]. As stated above, the technocrats hold malfunctioning behaviors and self-centered interests. They are assumed to collude with international agencies for formulating and implementing resource management policies by focusing on mutual self-centered interests. The works of the agencies can create institutional and biophysical environments adverse to sustaining or conserving indigenous resources, social-ecological systems, and institutions.

The agency can have many self-interests: obtaining extra financial and other benefits, promoting personal interest resources, or exercising greater power and resource. The bad outcomes can also be a result of working with negligence and obsolesced knowledge that the agencies practice for keeping working life easy. Some of the adverse outcomes can result from the activities or working behaviors to show work performance for personal gain. The collusion of national and foreign agencies permits work in the best interest of foreign countries or favorite groups. The colluding agencies can have overused, misused, disused, bad-used, and abused strategic tools at their disposal wherever appropriate for achieving their goals. The communities can do little against the maneuvered works of the agents which result in the loss the indigenous assets.

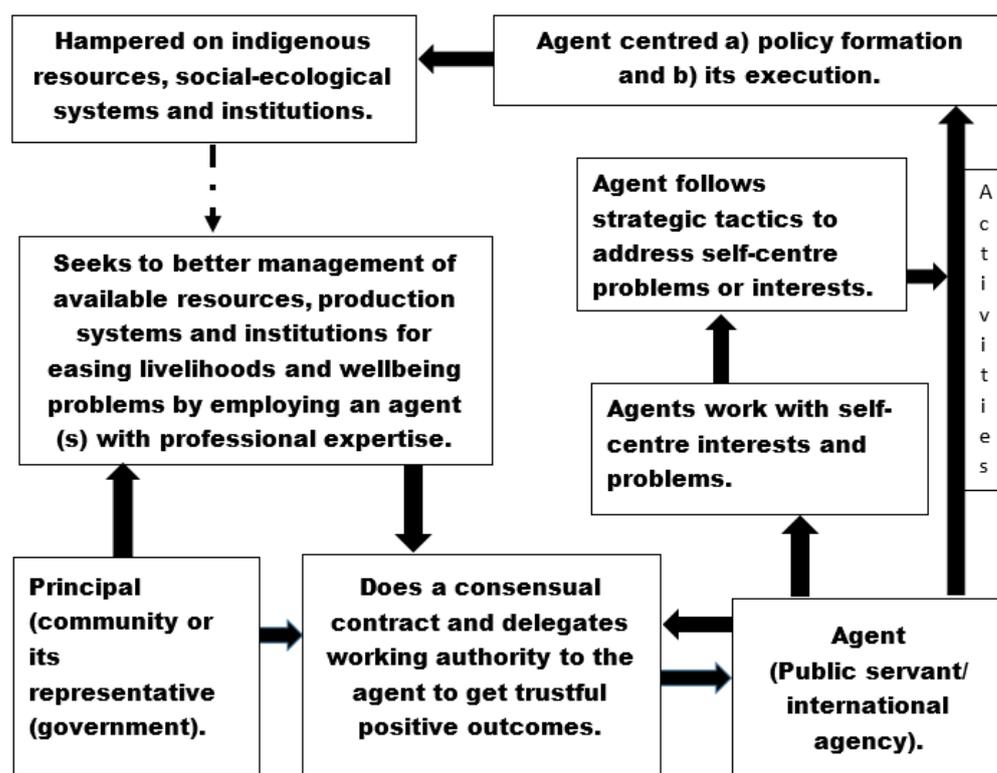


Figure 1. A conceptual principal-agent model that results in loss of indigenous resources, social-ecological systems, and institutions by interventions of external supporting agencies.

3. Study Methods and Data

This study used mixed sources of data to explain the research problem. It used descriptive data from secondary sources. The data were collected from official documents and published materials and field reports particularly related to agriculture, forestry, and biodiversity. The official documents were available from the forestry ministry, agricultural ministry, and international organizations [24,25,27,58–68]. Other information was collected from policy and implementation review reports or publications [6,11,13,15,17,19,38,56,69–81]. Most of the recent documents were available online. Some official documents and field reports were available in libraries. The main documents and data used for this study are as follows:

- a. Long-term development plans or policy guidelines of agricultural, forestry, and biodiversity sectors;
- b. Acts and bylaws to implement;
- c. Policy implementation project documents;
- d. National statistics;
- e. Policy and implementation review reports or publications.

Some data were searched on digital library catalogs and Google engine. Keywords and phrases relevant to the study problem and field were used individually and in combination to filter and extract relevant information from the databases. The common official working process, actors’ responses or behaviors, and governance issues were the key phrases.

Since this study is focused on the inappropriate work of national and international agencies leading to the degradation of indigenous practices, the collection of some data valuable for the problem investigation was either too expensive or not possible for external researchers. The experts who experienced or observed the problems in their official tenures or home communities could provide valuable information. This study comprises experts who have work experience from policy design to policy implementation in various fields and regions of the country for many years; therefore, they addressed data prob-

lems. The knowledge of the experts filled missing or undocumented data and provided insights on study problems that are meaningful. The details of the experts are given in the authors' profiles.

Some maps of the current situation and photos of indigenous systems are also used in this study to support arguments. The maps were received from the official sources whereas photos were taken from the fields. Studies based on such mixed data are well recognized in scientific publications [82,83].

This study followed a qualitative approach for data analysis and presentation. Relevant policy and practices cases and data from source materials are presented descriptively in the Results section. The weaknesses or drawbacks of the policies and practices or behaviors that resulted in losses of the indigenous assets are also discussed with scholarly arguments and logic. In some instances, the study compared cases, situations, or data with similar areas. The information presented in the Result sections is summarized in the Discussion section to conclude.

4. Study Site Contexts: Indigenous Resources, Institutions, and Social-Ecological Systems

Geo-ecological conditions played crucial roles in the evolution of indigenous resources, systems, and institutions in Nepal where hill and high-mountain areas of the country comprise over 82 percent of the national territory [84]. The distribution of the geo-ecological features is illustrated in Figure 2. Snow and rocks (with no vegetation) cover over 21 percent land of the country. Alpine vegetation region is extended in 8 percent area. The mountain lands are geologically sensitive and have a substantial proportion of areas with marginal productivity or rocky attributes. People have lived in the mountains for millenniums and developed various social and natural assets to adapt to life in such harsh terrains and seasons [13,85–87]. They appropriated (privatized) geologically safe and reasonably fertile lands for arable farming. The lands with geo-ecologically less safe and other extreme conditions were managed in common for livestock grazing and forest uses. The land use practice developed forest resource complemented farming systems. Figure 3 depicts a mix of farm and forest landscapes of the country which is the outcome of the human and environment-friendly land-use practices. The integrated land uses resulted in natural forest and private land mixed landscapes, which allowed the coexistence of human and wild animals including carnivorous in the same localities. This is the main reason for remaining public forests in 44.74 percent of national territory [88]. Registered arable land including rural residences is reported below 14.7 percent [84,89]. Such land-use practice is rare in most countries and especially in developed countries.

Unlike Europe and other developed countries, the Nepalese mountain communities do not apply chemical fertilizer to grow grass, trees, and other vegetation in forests for animal feeds. Thriving of the naturally grown vegetation in the forests requires moderately open tree canopy conditions. Naturally gifted species (e.g., regenerate naturally, coppice, feeding safety, and season-wise production) and indigenous knowledge and practices (e.g., lopping branches) favor sustainable management livestock in forest fodder [90,91]. Seasonality of forest fodder needs also advantaged mountain communities in achieving a considerable degree of forest regeneration and protection. Some households owned lands in multiple agroecological zones to obtain access to some fertile lands and local forest resources for meeting seasonal farming needs. The livestock with transhumance practice in the high mountain region utilized forage of the alpine region in the summer and fertilize transalpine crop fields during winter seasons [13,87]. Indigenous farming is still relevant as it has been enforced by geo-ecological conditions.

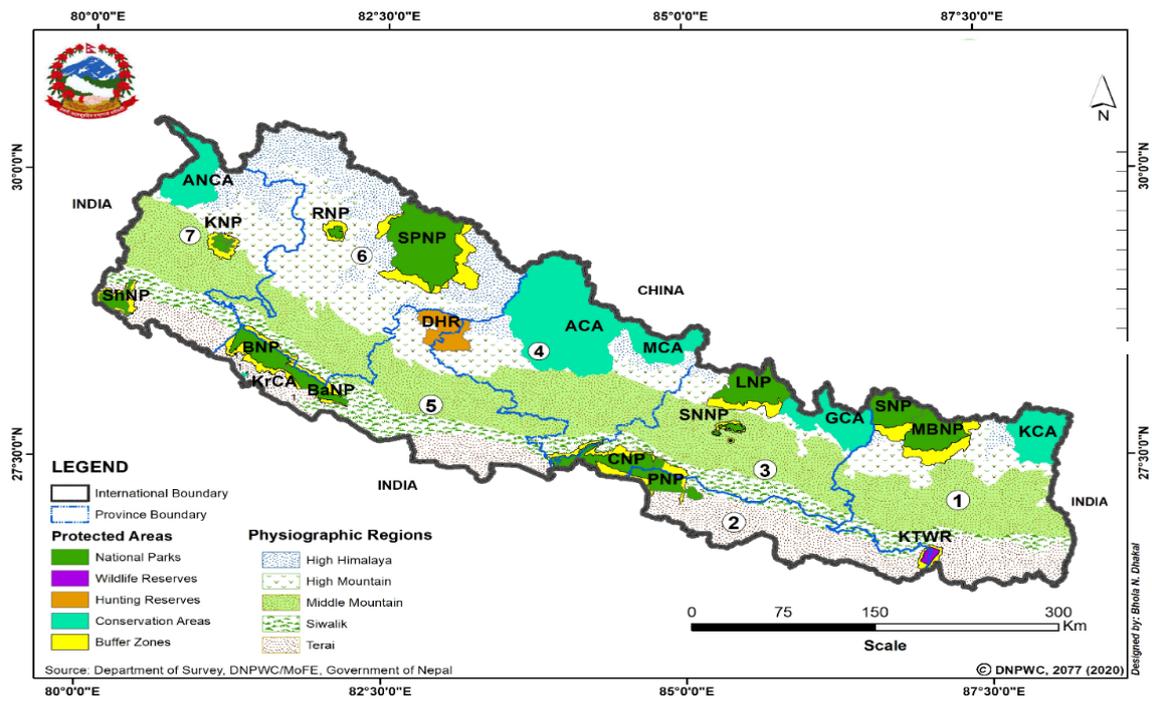


Figure 2. Physiographic feature of Nepal. (Source: Department of National Park and Wildlife Conservation).

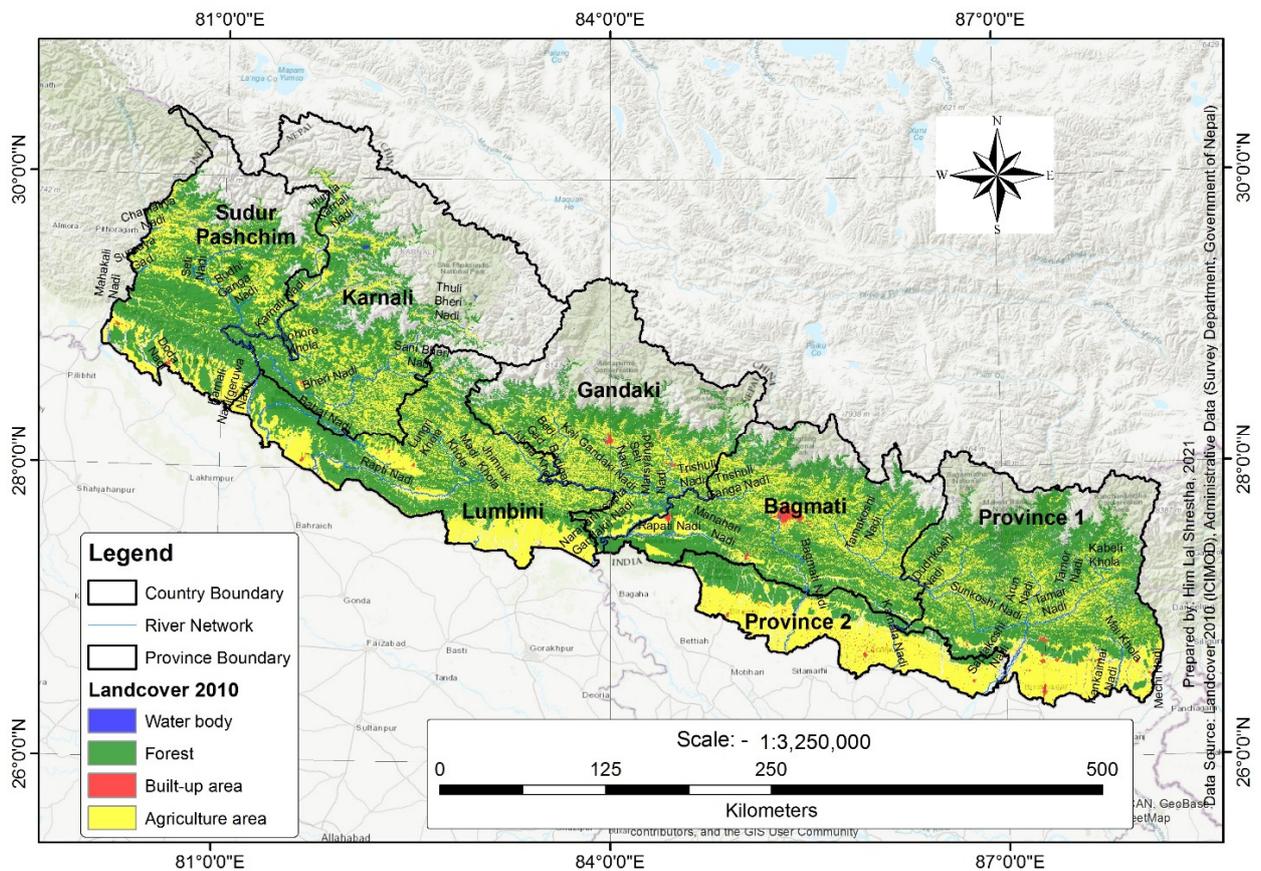


Figure 3. Nepal’s map depicts agricultural and forest mixed landscapes in the mountain. (Source: Department of Land Survey, Nepal Government).

Moreover, the practices of millennium-long complementary forest and farm resource practice determined local farming systems (e.g., crop-livestock mixed system), no private pasturelands, and land appropriation (privatization) in the mountain [13]. Combination of geo-ecological conditions and historical civilization strongly determined current land distribution and farming practices in the country. According to CBS (2011), the average private landholding is 0.67 hectares, and more than half of the farms are less than 0.5 hectares [92]. Land use statistics show that private landholdings of about 80 percent of hill farmers were 0.5 ha or less even in 1962. The landholding comprises multiple numbers of parcels (average 3.2 in number and 0.2 ha in size) due to huge fertility variations and irrigation availability in the lands between agro-ecological zones in the mountain [13,84]. The land fragmentation is an adaptation strategy for family and community benefits as land is a vital scarce resource for life support. The lands in the mountains are characterized by high heterogeneity in productivity and are available in small pockets and different agro-ecological locations [13,87]. Figure 4 shows a typical farming land in mountain landscapes with a predominance of the ultra-small size of farms. The ultra-small size in the mountain terrains has constrained sufficient food production and commercial-scale farming. The land problems dictated most mountain households to focus on farming for home consumption. Mountain farmers, therefore, practiced forest resources complementing farming to sustain their living in the harsh region [13]. The complementary system, if managed fairly, benefits more to social groups that cannot utilize economic activities outside their communities.



Figure 4. Ultra-small private land parcels in the mountain: a common land-sharing practice to survive in limited availability of safely farming and fertile lands.

Agricultural production of over 50 percent of farmers is still limited for home consumption [93]. Considering family preferences and circumstances, mountain farmers produce

many kinds of crop products in their lands despite smallholding. The farmers often grow many products to hedge against the uncertainty of external supplies. Even if some cheaper substitutes are available at the market, some farmers grow their products to make them convenient for home use. Due to meager lands, a large number of farmers cannot produce enough harvest to sell in the market. A large number of Nepali farmers seek to use farm land for producing foods with seasonal preferences and tastes. Securing maximum yield or profit is not the priority of the farmers farming for family happiness and satisfaction. In addition to geo-ecological constraints and remoteness, government and market institutions in Nepal are critically messy for reliably selling farm products, even those of surplus from consumption. The tradition of regenerative and vertical integration production systems has contributed to conserving agrobiodiversity, food security, and providing greater family satisfaction [13,87]. The system can be considered a mountain lifestyle or farming culture.

A large percentage of farming lands, especially those in the upper part of the mountains, is rain-fed and on the unlevelled terrace or steep terrains [11]. The lands require compost to refill organic matter lost by soil erosion for achieving reasonable yields as shown in Figure 5a. Profitable production cannot be achieved in some of the mountain lands with chemical fertilizer application. Moreover, the supply of fertilizer is not reliable. Harsh topography has also made mountain farming labor-intensive [94]. Even now, limited progress has been achieved on replacing the practice of animal power-based field plowing by mechanization due to the steep, fragile, and harsh topography of mountain farming lands (Figure 5b). The animals provided food and nutrition, compost, farm-power, and transportation to sustain mountain farming and livelihoods in small private landholdings [13,95]. In this sense, livestock is an engine of mountain life. However, the lands of some farmers cannot sustain even one livestock unit. In the old days, the livestock of most small farmers was grazed in the forest when their private lands were planted, especially during late summer and autumn. During spring, the farmers used to lop fodder from the forests. The farm and forest integrated production systems contributed to the development of social-ecological systems-based biodiversity in both farm and forest. It also oriented the mountain community to practice organic production [13,87]. However, influential international development agencies treated the production system as an environmentally bad practice [11,69,75].



Figure 5. Indigenous farming system: (a) Livestock manure applied to restore organic manure lost from slope terrains. (b) Livestock for field plowing. The lopped branchlets of the trees around the field fed to livestock (Source: Yuba Raj Bista and Bhojpur newspaper).

Most indigenous resources and systems in the mountain were sustained by forest and farm integrated systems [11,69,75]. They flourished when the community had control over the management and use of the forest resources based on local farming conditions

and household needs. Such indigenous assets including forest-farm integrated production systems are still stronger in many communities of western hilly districts than in the communities of the eastern part of Kathmandu. Population displacement is much less in the northwestern part of the country where development agencies have not hampered much on indigenous systems [96]. Communities in the mid-hill part of the western region have still managed their forage and firewood needs sustainably by harvesting coppiced branches on a rotational plot basis. The practices can be seen hardly in the communities close to Kathmandu where interventions of development agencies are very intensive on forest resource management. State agents used forest resources around Kathmandu to meet their interests, which resulted in a lower extent of the indigenous assets than other areas in the country. The dependency on imported chemical fertilizer (intensive to greenhouse gas emission) is also naturally lower in the communities with higher availability of forest forage for livestock farming.

5. Faults of Policy and Supporting Agencies to Hamper Indigenous Assets

The issues of conserving indigenous resources, institutions, and systems are attached to many sectors in the mountain farming context. The faults of policy and development agencies are, therefore, evaluated on agriculture, wildlife conservation, and forestry including carbon sequestration (climate change) sectors.

5.1. Farming Sector

5.1.1. Agricultural Policy

Weakness in the National Plan Formulation Process

Plans and other policies are critical political frameworks determining the extent to conserve indigenous resources and systems. Policy decision-makers of Nepal considered the policies that promoted modern technology-based farming and discouraged indigenous practices since the late 1960s when new technologies increased agricultural productivity substantially in Europe, the USA, and Australia [97]. Considering the weak institutional capacity of Nepal's government, experts of international agencies started leading in formulating agricultural policies for modern technology-based farming since the 1970s. Government officials are still dependent on foreign experts in plan formulation [68]. In practice, funding agencies, particularly the Asian Development Bank (ADB), provided their consultants to prepare development plans. The drafts even of recent long-term agricultural development plans were prepared on the ADB templet and direction in Manila [68]. The plan preparation projects were led by experts with little familiarity with regional agricultural development contexts and states, and the merits of indigenous resources. In addition, the current agricultural development plan (officially called Agricultural Development Strategy 2016–2035 or ADS) is a compilation of strategic interest reports of 12 bilateral and multilateral agencies [68]. The ADB consultants reshaped policy frameworks and accommodated the strategic interests of the international stakeholders. The policy frameworks have dictated using of modern inputs which were proven successful to maximize agricultural production in developed countries and some regions of developing countries with special institutional and social-ecological systems and geophysical conditions. The plan has considered the indigenous resources and practices barriers for increasing agricultural productivity and rural prosperity. The working strategies and activities in the plan were devised to dismiss or replace the indigenous ones. It is a quite natural thing for foreign experts, often termed development tourists, to overlook the merits of indigenous farming resources, systems, and practices that the prosumer society in the unique mountain context implicitly benefitted in multiple ways. Generally, the hired experts focused on policy guidelines and programs that pleased influential government and donor officials and cared little on long-term implications in the country. The agricultural policy with modern technologies and institutions made the officials happy. Local stakeholder consultation meetings made little difference on the policy frameworks that were set up by the consultants on funding agencies' interests.

Government officials (technocrats) are supposed to lead plan formulation and scrutinize the advice of foreign experts by considering the national context. However, they allowed foreign experts to lead the work to avoid intensive work responsibilities and hassles. The work of the experts was little verified from mountain geo-ecology and community perspective. Another motivation to involve experts is to obtain the benefit of foreign aid. Donors, generally do not provide foreign aid unless the plan development proposal specifies the need of hiring foreign experts. They believe that the plans formulated in the experts' involvement better address their interests and values. In the absence of foreign experts, the national officials would be compelled to perform some exercises in making the plans. The exercise would make officials more likely to think differently and consider the merits of indigenous assets. If the officials had led and worked themselves, they might think about the long-term implications of the plan. The knowledge and experience could help to alleviate problems in the next plan development. In addition, there was less chance to be included in the policy strategies and activities that address interests of vested interest foreign agencies and harms on indigenous assets if such important plans were developed by national experts.

Weaknesses in Long Term Plans

The agricultural development plans poorly stated long-term visions for national food and agricultural economic securities based on national strategic position. The mainstream farming system as stated in the preamble section of the ADS is the flash agricultural business activities with modern inputs [68]. The plan has focused primarily on crops and treated each production enterprise independently (in a linear production system) from other farming activities as commercial crop growing companies do in developed countries. Looking closely at the community level across various regions of the nation, the indigenous farming system is the backbone of farming, which is dictated by the geo-ecological and institutional context of the country. The scope of successful farming with modern inputs is limited to a few packets and primarily for commercial growers in foothills and Terai areas. Modern farming is the less preferred option for households performing farming for social security and (retired) lifestyle. The majority of farmers have treated the modern practices as retrofitting of indigenous ones. Probably over 80 percent of farming communities have adopted a circular economy model that comprises the crop, livestock, and forestry components. Agricultural development strategies and programs of the ADS plan have little-recognized the mountain farming system [68].

The long-term agricultural development plans have strategies to dismiss or discourage indigenous resources and practices. For instance, the ADS 2015-2035 has directed promoting carbon forestry in community forests, which is based on the belief of benefitting agriculture. In practice, carbon forestry hampers forest fodder collection, livestock grazing, and forest-based livestock holding. It indirectly affects the food crop production system in most parts of the country which is sustained on manure and other benefits of livestock farming. The policy destroys silvopasture-based livestock farming systems which are considered nature-based solutions and climate-smart farming even in developed countries [98,99]. The silvopasture system sequesters carbon on-farm, reduces carbon emission associated with fertilizer application, and hedges pasture and livestock from extreme climatic variabilities. But the ADS did not care about such meritorious indigenous practices prevailing in the country and followed policy strategies counterproductive from local environment conservation, indigenous resources protection, and food security perspective. Once the carbon credit of the forest resources is sold to foreign agencies for climate change mitigation, it will be too costly to make reuse the resources for local food security. The destruction of the indigenous systems gradually forces them to be dependent on imported chemical fertilizer which is a very costly and risky measure of food production, especially in the mountainous regions. Many communities cannot sustain farming on meager private lands. The destruction of the indigenous farming system forces them to abandon arable lands from farming and emigrate for an alternative source of livelihood. Past policies also

neglected the indigenous assets [67,100]. A growing number of studies indicate that the bad governance of Nepal provided vested interest international agencies opportunities to influence national policy which hampered national development including indigenous systems [38,56].

Seed supply and conservation policies of the government are also very harmful to indigenous practices. The government advised buying seeds from registered sources and opened doors for importing exotic varieties that are produced mostly by genetic modification [73]. The development agencies often provided modern inputs free of cost at heavily subsidized prices to influence farmers' decisions on changing crop varieties. The free distribution of heavy subsidies motivated farmers to adopt extensively the exotic ones and displaced indigenous ones that have evolved from century-long farming practices. Such formal measures have created a problem for farmers to farm seed and breed exchanges and hampered genetic diversity [15]. Making sure to maintain seed availability of existing varieties is a corporate responsibility of the government and supporting agencies that introduce new varieties in the community. The agencies have not taken the responsibility in practice. In addition, farmers have experienced the problem of deterioration of the production quality of exotic seeds [15]. It is too costly to multiply seeds of exotic varieties with ordinary farmers' skill and technology. Farmers have suffered from crop failure when they planted cheap seeds due to high prices for quality seeds. The government has allowed importing unreliable cheap seeds without developing backup institutions to save indigenous ones. If the farmers had grown native varieties, the grains stored for consumption purposes could be used as seeds in such a seed crisis. The native seeds stored in gene banks and museums become useless for the farmers in the crisis. The negligence of the government officials has displaced indigenous varieties and created frequent problems of seed shortage of exotic varieties during various crises such as the COVID-19 pandemic season. The contents in the long-term plans indicate the importance of indigenous resources and practices for national food and economic security are little recognized. The degradation problems can be halted unless they are recognized in the long-term plans.

Delinking Cross-Sectoral Dependency

As stated previously, most indigenous resources and systems in the mountain are founded on forest and agricultural integrated systems. The community forest is a source of fodder, animal grazing, and leaf litter in critical seasons which meet the need for animal feeds and farm manure production. It means the forestland is a source of agricultural inputs and the base of farming systems. However, the forest authority followed the advice of international agencies that worked in Nepal to dismiss forest-based livestock farming and increase tree stocks in the communal lands for carbon sequestration [53]. The policy resulted in overstocking trees as shown in Figure 6, and a shortage of forest products and services to sustain indigenous assets [19,76,101]. Such purposive destruction of indigenous food production systems is a serious issue that all government authorities and international agencies are supposed to be accountable for. The Paris Climate Accord 2015 has also given GHG emission concession for farming by considering crucial means of supporting human life and livelihoods [102]. Dealing with the policy issues specific to the food-related field is a well-specified key responsibility of the government authority of the agricultural sector. The authority has neglected the responsibility even of such a serious issue. It rather endorsed and legitimized forestry carbon sequestration in the long agricultural development strategic policy [68].

Rebellious Policy Environment

Implementation of long-term plans has also exacerbated problems in practicing indigenous systems. For instance, the prime minister's agricultural modernization program that was developed to implement ADS has offered lucrative subsidies for promoting modern input-based commercial farming [62]. The program has focused on large farmers, especially of accessible areas, and aimed at meeting food demands, particularly of urban users at low

prices. It has emphasized and subsidized the application of chemical fertilizer and hybrid seeds and working with new institutions. The subsidies on the modern inputs motivated farmers to work with new inputs and institutions. The policy has made the indigenous system economically and socially less competitive or appealing. Despite no guarantee of the subsidy for every year it has spoiled farmers' attitude and behavior to practice indigenous resources and institutions [15]. In addition, the government officials at the policy decision level have spent their most time and efforts in advocating and lobbying with politicians to provide a decent amount of subsidy for importing and using chemical fertilizer. They have given little time to think about the possibility and problems of better food security and rural community wellbeing by revitalizing the indigenous assets. Similarly, almost all human resources at sub-policy decision levels are engaged in helping and promoting the modern farming system. They never think about supporting and promoting indigenous practices, except the organic farming that urban elites have valued recently.



Figure 6. Typical mountain forests with overstocked and underutilized conditions: externally induced institutions have constrained the local community to manage and use the forest resources with indigenous practices for food security and livelihoods.

Enervate Bureaucrats in Policy Making Level

The government officials, by bureaucratic tradition, exhaust most of their official time and thinking energy for pleasing powerful people and manipulating the official systems to obtain personal gain. The tradition has constrained their time and energy to think constructively and innovatively on policy issues and strengths in a national context and understand the global policy context. The enervated bureaucrats easily trust the views or ideas of foreigners with contested interests. For example, they have extended hands with donor agencies for foreign aid to develop and practice foreign expert idea-based-climate smart technology but they made little attempts to understand and protect indigenous resources, institutions, and social-ecological systems with such meritorious attributes. For instance, the Ministry of Forest has approved a project of WWF to abolish forest resource-based livestock farming and indigenous livestock breeds for forest carbon sequestration (to offset carbon emission of multinational companies and affluent societies in developed countries) [27]. Almost all recent forest policies including community forestry that the Nepal government formulated and practiced with advice and support of international agencies very much destroyed forest-resource-based farming. Silvopasture-based farming is considered climate-resilient farming in most developed countries including the USA [98,99]. The countries have started promoting farming systems. Most of the livestock feeding on the forest resources are indigenous breeds that can withstand extreme stresses of climatic variabilities, diseases, and poor quality fodders including feed shortage. The community land-based farming system also benefits more and provides social security to small landholders and landless people. Instead of defending the meritorious system, agricultural bureaucrats supported the WWF program objective of replacing the indigenous breeds with exotic ones and destroying forest-silvopasture-based farming [27]. This is how enervate bureaucrats contributed to destroying indigenous resources, institutions, and

social-ecological systems. There are numerous cases of how enervate bureaucrats destroyed indigenous farming assets.

Nepal requires intensification of farming land uses to break the current vicious circle of rural problems: youth exodus, farm labor force shortage, family tragedies, underutilization and abandoning farming lands, and escalating food insecurity, especially in the mountain region [76,101]. Despite providing retrofitting for the indigenous ones, the modern practices are too costly and impractical for addressing the problems of most communities in the mountain context. Improvements in indigenous practices can address the problems to a large extent. The government bureaucrats have made no efforts to explore alternatives to modern practices that could better suit the communities with limited private land and the possibility of using public land resources.

The farming practices of the country especially in the mountain regions are unique to the local context and have many merits for conserving farming cultural heritages. The indigenous farming systems evolved on local natural resources and fostered a production environment of multiplying crop seeds and animal breeds. They reduce the risk of serious crop failure as most of the species evolved millennium-long processes and withstood several biotic and abiotic stresses including various kinds of extreme climatic conditions [97]. The geo-ecological conditions and other constrained determined by the mountain have also urged farmers to follow such practices for achieving resilience living. The indigenous systems greatly benefited farmers who farm mainly for family food security and lifestyle. The intentions and practices of non-commercial farming are genuine for farmers who live on meager lands or in localities with poorly developed infrastructures, unsecured institutional support, and environmentally vulnerable conditions. The production practices can be considered happy lifestyle-based farming. High-yielding and profit-oriented farming does not necessarily result in better wellbeing, greater family satisfaction, and happier lives for those farmers. Prosumer society considers taste differences and other cultural and medicinal values associated with crop varieties [15]. It often gives different values on products of different livestock breeds such as meat of local black male goats, butter of local white-striped cows (Mali Gai), and milk of black buffalos. Family satisfaction or happiness motivates the society to sacrifice or compromise yield quantity, labor, and other costs while producing the products. Strengthening the farming systems and social values of the prosumer society would enrich locally important biodiversity, maintain a healthy environment, and foster high-quality life. The bureaucrats responsible in the field never thought and considered such merits of indigenous farming systems for the conservation of locally important biodiversity and the wellbeing of communities in unique geo-ecological conditions. Nepali politicians fully depend on suggestions of the technocrats to rectify new policies due to the lack of tradition of serious self-study to make political decisions.

The enervate bureaucrats adopted national policies based on the views of experts from developed countries who considered indigenous resources and practices as backward (often termed “subsistence”) and imported external input-based practices as the noble ones in the 1970s–1980s [97,100,103]. The experts hold little understanding and feeling of the social values and behaviors of the prosumer society due to up brining in proletarian societies. These are the main reasons that they have still propagated obsolete (i.e., negative) social views of indigenous inputs and practices and novel (i.e., positive) views on modern ones in the community to deliver their works. These views have played roles in society and supporting organizations to promote modern resources and practices and discourage indigenous ones. The programs and supporting strategies of all development agencies have on practicing exotic ones automatically displace indigenous ones [97,100,103]. Service-providing agencies including the government agency, for instance, have made policies to subsidize the interest rate of bank loans and price of inputs and provide technical support for practicing them that are not available for indigenous ones. The development agencies including the government have applied various tactics such as field and stall demonstrations, providing subsidies, media campaigns, and motivational discussions as attempts to displace 100 percent local ones with the exotic ones to show their work

achievements [100]. The strategically introduced farming inputs and supports have harmed many indigenous biotas and crop varieties that thrived on the organic matter of farm-yard manure. In short, bureaucracy has been working against prosumer farming. In essence, the bureaucrats have not attempted to understand the social significance of indigenous farming in prosumer society and promote the meritorious systems in the unique mountain context.

5.1.2. Agricultural Policy Implementation

Monitoring and Reporting Problem

Policy-driven harms on food security resources, institutions, and systems, especially vulnerable societies, are very sensitive humanitarian and national security issues. Many harms can be easily noticed in the community. For example, decreasing livestock holding and farm manure production after afforestation in community pasturelands is an easily noticeable and understandable subject [15]. Increasing abandonment of arable lands from farming is also a subject easily noticeable and mainly associated with a shortage of farm manure for field fertilization. The heavy subsidies on prices of chemical fertilizer cannot substitute the loss of the organic materials in the mountainous lands and bring them back into cultivation. Farmers very often shared such problems while discussing agricultural development affairs with development agencies. Ordinary farmers could not voice against the practice of development agencies due to sociopolitical pressures [104]. There is also an institutionalized system of reporting and reviewing progress and problems of agricultural fields quarterly. The field officials are supposed to collect the information to communicate such problems at the policy level or stakeholders' forums. However, the agencies paid little attention and value to report such sensitive issues especially related to indigenous resources and systems to local, regional and national authorities.

Negligence and Bad Working Practices

Development agencies with varieties of motivations and interests are involved in implementing agricultural policies. Some of the agencies provided heavily subsidized or often free fertilizer and exotic varieties for motivating a large number of farmers for adopting the practices and inputs of their interests and showing their work progresses to donor agencies [61]. When the agencies continue program activities for three to five years (average period of the externally funded project), the activities destroyed the indigenous resources such as crop varieties and weakened their supporting institutional environment in the community. Collapsing of the indigenous resources and institutions in the community compelled the farmers to practice imported ones. For example, subsidized distribution of seeds of hybrid and other exotic varieties displaced most indigenous varieties that the ordinary farmers could multiply or get from local communities. The farmers are now required to buy seeds of hybrid varieties every year due to being too costly to grow the seeds at the farmer level. Crop yield from the seed of other exotic varieties also deteriorates faster than native ones after growing a few seasons due to their poor genetic stability [15]. Getting seeds of native varieties suitable to specific agro-ecological land site conditions has been now too costly for ordinary farmers. The development agencies paid no attention to such serious problems of farmers and the risk of hampering or destruction of indigenous varieties and practices while making their interventions for agricultural development in communities.

Farmers are often trapped by intervention strategies of the field agencies to adopt modern practices and to give up or replace indigenous systems. The agencies regularly organize paid training and field or stall demonstration visits to show flashing returns and attract farmers to modern or imported practices [61]. Convincing and mobilizing local leaders or elites are common approaches to convince or pressurize small growers for adopting modern practices at the community scale. The development agencies have a little tradition of discussing with communities and farmers about the demerits and risks of new practices over indigenous ones. Almost all early adopters followed new practices based on trust with service providers and experimentation. When many neighbors adopted

modern ones, it compelled the remaining farmers to shift to modern practices due to the essentialities of synchronizing their farming practices with neighbors. For instance, most native growers are compelled to grow exotic ones due to the spillover of pests from exotic crops to native ones. Exotic varieties ripe earlier and harbor pests much more than native ones. Controlling pests is a costly endeavor due to small land parcels with an average of 0.2 ha [92]. Similarly, late growing varieties, especially rice, require irrigation often until exotic crop harvesting and often the next crop sowing season. The water spilled over from the native crop field spoils the harvested exotic crops and makes the neighbors displeased. The intervening agencies did little care about the problem of native crop growers and have compelled them to give up the practices. They did not follow due diligence practices to work in such a sensitive community environment.

5.2. Forestry Sector

5.2.1. Forest Policy Level

Inappropriate Foreign Interventions

Significant losses in forest resource-based indigenous systems started in the 1970s which is marked as the starting decade of foreign interventions on resource management [69,75]. The intervention commence after the scientists of the developed countries highlighted the need for conserving and increasing forest resources wherever and how-ever possible for offsetting GHG emissions that the industrial economic activities created and contribute to global climate change [105,106]. Livestock farming, the backbone of indigenous resources and systems of Nepal were sustained in a moderately open canopy condition of naturally grown production forests. The silvopasture based livestock farming was a regenerative natural-based solution for the livelihoods of the farmers who lived in harsh mountain conditions. But influential international agencies explained the forest-based farming practices as a culprit of deforestation, landslides, and downstream flooding to achieve their hidden interests [69,75]. Landslides and flooding, in reality, are frequent problems in the geo-ecologically sensitive mountain landscapes in extreme rainfall years and global agro-ecological variability seasons. The extreme landslide phenomena at the time resulted probably due to triggering accumulated pressures of lands by an elevated level of rainfall from a depression level. The rainfall pattern was globally down since the 1940s [107,108]. Preventing the extreme event associated with environmental problems was neither under the control of local people nor relevant to their farming practices [90,105]. However, foreign experts and scholars with limited knowledge on local realities shared their views globally and called for interventions on indigenous farming practices including forest-farm integrated production systems [90,105]. International agencies stopped funding for integrated rural development programs then. Many agencies started funding for afforestation in community pasturelands and tree enrichment in open spaces of the forests [11].

Implementation of the Master Plan for the Forestry Sector Nepal 1988 brought landmark changes in the use of forestry resources for indigenous farming. The plan was historically a landmark red book of forest policy that was prepared in the initiation and funds of international agencies by foreign experts [62,109]. The plan was prepared mainly by foreign experts as suggested by the funding and coordinating agencies (FINIDA, ADB, and FAO) for the plan development. The agencies considered the poor capability of Nepali officials to make a scientifically sound and pragmatic plan. Detailed roles of the experts are given in the main report of the plan. In practice, national officials had only symbolic and clerical roles in the plan development work [62].

When the forest plan was undergoing formulation, many international environmental agencies and INGOs were advocating and lobbying for an internationally binding agreement of managing all-natural forests of the world for carbon sequestration and climate change mitigation [110,111]. Many developing countries including India strongly opposed the concept of an internationally binding policy for managing all-natural forests for carbon sequestration and global climate change mitigation. India had defended with the argument

that public forests in the Indian context were community orchards for producing daily household need products and services [110,111]. The effort for a binding agreement ended on a non-binding agreement in the Earth Summit 1992. The scope of using the most forest of Nepal is also similar to India. But the master plan stated that the goals of the new forest development policy were adequate supplies of wood for urban users and industries and contributing to meeting basic needs. The plan set up the strategies to restrict fully the forest resource uses for livestock, increase forest in public lands and protect natural forests which was the main interest of international agencies to intervene in Nepal's forest policy [75]. The experts knowingly ignored foreseen shortage of forest products and services of regular households and need products resulting from the new forest development strategies and programs [62,112]. They intended to discourage the use of forest products and services for household and farming uses. The experts did strategically these arrangements to increase carbon sequestration and reduce GHG emission of livestock which would offset the GHG emission from developed countries. The Nepal government officials and experts blindly endorsed the plan without scrutinizing whether the foreign experts worked with the international resource political interest and made the forestry plan against the wellbeing of the local community and security of the nation.

Even the current Forestry Sector Strategy 2016–2025 prepared by following the guidance of a foreign agency (DFID) and experts is detrimental to indigenous resources and social-ecological systems [66]. The plan is a blueprint of the forestry development strategies of the Multi-stakeholder Forestry Program (project), a joint venture project of Switzerland, UK, and Finland governments in Nepal. The project was designed to abolish the remaining forest products and services-based farming, increase wood production and enhance forest carbon sequestration for trading the forest carbon in developed countries [65,113]. The work of abolishing millennium-old food systems of poor communities primarily for offsetting the GHG emission of developed countries could be considered a crime against poor mountain people. The investors terminated the project when they knew the program was extremely inappropriate from a humanitarian perspective. However, government bureaucrats continued implementation of the plan founded on the extremely inappropriate forestry development program document. The government agencies by following the advice of international agencies have managed all community-based forests in intact systems for carbon sequestration. It has done an agreement with international companies to sell the forest carbon credits of many forests [23]. The intact management system and carbon credit trade further hampers social-ecological systems and the opportunity of regenerative uses of the forest resources.

Inappropriate Policies in the Mountain Context

The mountainous agro-ecological and physiographic conditions constrained and guided local communities to manage public lands for multipurpose uses and sustainable living. The communities developed indigenous resources and systems with millennium years of practices and experiences to adapt to the harsh conditions. But the strategic forest plans prepared by development experts focused on increasing timber and forest carbon credit with intact management which naturally reduces the availability of the forest resources for community indigenous uses. It also increased negative externalities and resulted in deadweight effects on other affairs and sectors which also harmed the indigenous resources (e.g., biodiversity) and practices. The monetary income from the forest carbon credit sell cannot buy or most substituting products and services or compensating benefits foregone from restricting the forest resource uses [114]. The agencies have imposed impractical policies and hampered the indigenous assets.

Community requires access to big forest areas to sustain indigenous assets due to site-specific availability of some products and services in the mountain agro-ecological and physiographic context. Conservation of indigenous knowledge system also requires a regular visit of forests and uses of forest products [15]. Current forestland management policy dictates managing most areas in intact carbon forestry systems and providing such

ultra-small pieces of degraded forestlands for the needy ultra-poor households. The policy makes little difference in reviving indigenous systems and the wellbeing of a marginalized group in the mountain context. It is because working at a community scale is essential for making most indigenous and other economic activities successful in the mountain community. Collective work also provides opportunities for sharing and learning of the indigenous systems. Indigenous communal management system if managed fairly provides the opportunity of using diverse products and services from larger land space which results in more conservation of indigenous assets and benefits to the marginalized groups.

Forest products and services even if available or use on small scale, had played crucial roles in complementing farming resources and sustaining livelihood including food security of resource-poor farmers, especially in critically scarce seasons. Policy change is an act of purposive institutional structural change [115]. It can be considered a very sensitive change if the change substantially affects the availability and access of the important products and services for vulnerable community livelihoods. Minimizing the harms is a political responsibility of the government and the ethical responsibility of other parties. Considering weak institutional capacity, budget limitation, and bureaucratic (administrative) hurdles for management, the government allowed international development agencies to work and provide quality services for doing the sensitive works. It permitted international agencies, as asked, to work independently and collaboratively by establishing their project offices parallel to the government at both district and center levels for work on the challenging sensitive problem [115–117]. The agencies had got a huge level of working freedom for deciding modalities of forest development including hiring foreign advisors for obtaining advanced knowledge and skills for forest development that were lacking in the country [115–117]. Despite having such working freedom and influencing power, the supporting agencies stirred the government mainly on achieving physical progress on area forested, number of user group formation, and figure of forest registration to the groups. They often formed a collusion for lobbying and advocacy and pressurized government agencies to induce forest development according to their visions and interests. They little practiced due diligence that was a crucial self-understood and obligatory practice to be followed by development support agencies for minimizing adverse effects in the sensitive social, economic, or environmental systems and vulnerable communities [118]. The government authority also hardly evaluated and reviewed the works of the agencies critically for correcting sensitive issues. Any policy action the authority initiated was either driven by the requirement of addressing serious incidence or pushed by international agencies or agenda. Harm on indigenous assets remained out of the area of its interest.

5.2.2. Forest Policy Implementation

Working Process Problem

The forestry development program introduced new institutions to regulate users' behaviors for managing forest resources in collective efforts [115–117]. The new institutions included legalizing the rights of users for forest management, forming and legalizing the users' group, and introducing the practice of managing forests based on legally approved forest operational and utilization plans. The institutions are legalized social structures which determine entitlement and availability of forest resources for the long run. The works of institutional development were supposed to be done very carefully and sensibly. But mostly under-skilled field officials introducing the institutions in communities performed the sensitive job. The official had pressures of senior officials and attractions of fieldwork allowance to finish the work timely. They worked hastily to show the physical progress of their work instantly and save time for other personal works [115–117]. Instead of critically assessing and determining the forest product needs of the local community, the forest management and utilization plan were made to protect and enrich tree stock as much as possible. The officials adopted a common template of the forest management plan for all user groups. The template was structured to protect the forest and promote wood production. No provisions are made in the template to minimise adverse impacts

on the indigenous assets. The weakness in the work processes resulted in the development of faulty institutions and inappropriate forest management. The institutions and resources hampered normal flows of forest products and services essential for sustaining the indigenous resources and social-ecological systems. Now policy conditions and other institutional complexities have constrained to reform them.

The government had funded user groups to plant trees in the remaining open land spaces of the forests. The field officials provided resources to communities for planting tree species with high wood value and non-fodder species in the remaining spaces of the forests. The species would get easily survived and grow faster. The officials also prescribed and motivated the communities to use only residual products: dead or dying trees, vegetation from the understory and residual open spaces, and produce from thinning and pruning or weeding activities [119]. The management made the forest wood production-oriented. The trees suppressed non-wood products that contribute to the conservation of indigenous assets. Now, the woods are overstocked and underutilized in the forests, which have suppressed the production of forest products essential for indigenous household uses [80]. Many institutional complexities from policy to community levels have hindered communities to make changes in the resources for increasing the forest products and services to meet regular household needs and conserve indigenous assets.

Another problem is the conservative values and attitude of forest officials in forest management and uses. The forest officials have little-recognized community forests as community orchards that should have grown multiple products for meeting the farming and other household needs of local people [20]. They have strongly behaved that the forest is land that should be used either to grow trees for wood production or protect wild animals. Most forests have still many tree species with regenerative attributes as shown in Figure 7 [90,91]. The forest managed under coppicing-based indigenous forest management would provide the community substantial forest products to meet the need of firewood, vine stakes, and fodder without degradation of the forests. Users could not have managed the resource once the forest came under new forest user group institutions. Despite the needs, many households have been unable to get the products and services due to institutional complexities of dealing and politico-ecology problems in collective management [77]. It is an officially assigned responsibility of the forest officials to facilitate communities for making the products and services available and used. But the officials are not serious about the community problems related to non-timber products. They have rather behaved that community requires adjusting their non-wood product-related businesses or lives on production from residual or unproductive spaces of the forests. This is a common acquired personality attribute of almost all people trained in the forestry field whether they work in government or other organizations. The personality has made them supportive of international agencies that have guided the forest management for the benefit of developed countries at the cost of exploitation and marginalization of the local communities.

Excessive conservation interventions of external agencies have resulted in a change in the psychosocial values of the community on forest management and use. Despite overstocking, underutilizing and decayed woods in the forests, and experiencing a shortage of daily need products for a large number of farmers, no one has dared to ask for a change in forest management for producing non-timber products and services [77]. Youths have rather left families in communities and migrated to cities or the Middle East and are working at jobs with low pay or that are life-threatening and possess social stigma [120]. This resulted in farm labor shortage and abandonment of arable lands, which in turn exacerbated the loss of indigenous resources, social-ecological systems, and institutions [121]. Unfortunately, Nepali forest resource experts, analysts, or academicians are unaware and have not attempted to understand institutional phenomena that caused the underutilization of forest resources in the mountain community context. They often argue that traditional uses of forest resources are no longer profitable and needed for local communities. The non-material and indirect values of the resources to the local society and conservation of

indigenous assets are out of the mind of the experts or personalities constructing social values and determining development policy agenda. The prospect of reviving indigenous management has been slim in the country due to the introduction of complex institutions and social value changes.



Figure 7. Some regenerative forestry practices: The first photo depicts firewood trees with coppicing practice (lopping branches in every three-year cycle). The second photo depicts an 84-year-old fodder tree that the owner lops its branches each year.

Misunderstanding on Mountain Forestry

Forest officials have not considered the forest as an important resource for supporting forest-based livestock and other farming activities in the mountain context. They have rather considered that livestock grazing in the public forest is an abuse of environmental resources [19,62,69]. In reality, livestock grazing degraded the forest condition due to inadequate production of their feeds in the forest. The problems were caused by officials who followed inappropriate forest management. They planted forest tree species with no livestock feed value and left little room for grazing. When the livestock experienced feed shortages, they over-grazed vegetation, which resulted in forest degradation. In the grazing process, the livestock also suppressed pest regulation. The negative thinking of the foresters on the mountain livestock business was propagated by western scholars and experts in the 1970s–1980s [11,75]. Nicholson et al. (2001) stated that adverse environmental impacts of livestock in developing countries are exaggerated internationally [122]. The ground realities are hardly recognized at both field and policy levels.

Over-Influence of Expatriates in Implementation

Foreign experts were hired for providing advanced technical expertise played substantial roles in degrading indigenous assets. They were mostly from commercial technical forestry backgrounds and donors' home countries. The backgrounds made them highly influential in formulating forestry development programs and forest management activities even in government office activities [115,116,123,124]. The expatriates guided the management of the community forests for production and supplies of quality wood that they believed to benefit the community better than those managed for household and other farming uses. Values of the forest resources, especially non-wood products to conserve indigenous assets and foster mountain economic sustainability were little considered in their works. Changes on expatriates made problems to implement even the forest manage-

ment programs that some experts developed to support the mountain farming system and conserve the indigenous assets. In response to the concern of people on adverse impacts of the new forestry program on communities, the experts used to reply that dealing with the affairs was the responsibility of government agencies. The government authority lightly took or dismissed the community problems, though they were serious from a community vulnerability perspective. National experts, especially with social advisor portfolios, were supposed to keep eyes on and inform management about spillover negative effects of the forest development and institutional reformations. They followed the interests of the foreign experts and focused their inputs on the functioning issues of forest user groups. The responsibilities to monitor such spillover effects, especially on indigenous resources and social-ecological systems were, however, neither explicitly stated in the program implementation document nor assigned to any staff. Foreign aid-funded programs had some provision of midterm project evaluation. However, the evaluation works were guided mainly by the interest and direction of project management people. The management had hired experts who would report in their favor. Studies of academicians also reported mostly positive outcomes of the development programs for pleasing funding agencies. The findings of independent studies about adverse were ignored [19,20,79,116,123,125]. Rather, most foreign-funded projects mobilized media to neutralize feelings of adverse impacts in communities and to obtain public support towards ongoing programs activities.

5.3. Climate Change Policy Level

5.3.1. Following of Internationally Guided Inappropriate Policies

Experts especially of developed countries have clutched international climate forestry policies for the best interest and benefit of their home countries [36,111,124,126]. Most policies are not friendly in Nepal contexts. International agencies have provisioned some funds to motivate developing countries including Nepal for adopting the international resource management policies [126]. The incentives motivated the Nepalese forest bureaucrats to accept the policy regressive to indigenous assets and community wellbeing. The foreign agencies have also been actively involved in national policy development and implementation. The policies and implementation works have focused too much on the protection of forest resources which hampered conserving the indigenous assets. For example, following the directive of the Landscape Forum meeting in 2015, Nepal made a plan to implement a landscape-scale decarbonization program in 2016 [127]. The international policy concept of landscape-scale decarbonization was initiated by CIFOR, a subsidiary of FAO, and actively supported by many INGOs and UN organizations. The agencies pursued developed countries for providing grants to lure or motivate the governments of developing countries for implementing the policy [127]. International agencies (ICI-MOD, IUCN, and UNDP) supported the Nepal government in developing its policy for implementing national wide [24]. Figure 8 shows the country is divided into seven zones to implement the landscape scale decarbonization policy. There was probably no other country in the world that has followed such an ambitious international policy disregarding the potential harm on millennium-old indigenous resources and systems.

Some international agencies including WWF -Nepal (the agencies funded and administered exclusively by the USAID) have started the implementation of the landscape-scale decarbonization program by partnering with the government agencies [27]. Most of the program activities of the project are intended to dismiss indigenous institutions, social-ecological systems, and resources including indigenous livestock breeds. Indigenous livestock breeds are a part of local biodiversity. The program with a genuine dedication to biodiversity conservation would not dismiss indigenous livestock breeds and forest-based livestock farming systems in the project areas. Multipurpose production forestry would enrich forest biodiversity and sustain the livestock. The hidden intention of the agencies of abolishing indigenous breeds is to lower carbon emissions by reducing the livestock holding and increasing forest carbon sequestration that helps in offsetting GHG emissions of developed countries. Abolishing the indigenous resources (e.g., indigenous breeds of

livestock) and practices (e.g., forest fodder use or grazing) is also believed to enrich forest resources for wild megafauna of their recreational interest and carbon sequestration benefitting global society. The aim is well stated in the project ratification report of Scientific and Technical Advisory Panel/UNEP that “[i]f successful, this project will result in significant global environmental benefits including the conservation of important ecosystems that provide multiple services including habitat for key megafauna” [27]. International agencies had used similar arguments to justify forestry development in community lands and establishing national parks [11,128]. The intention of the agencies to displace the indigenous breeds with the exotic breeds is that the indigenous livestock breeds can sustain on forest fodder and poor pasture. Indigenous breeds can also graze in high gradient terrains, tolerate the stresses of many pests, and escape from wild beasts much better than exotic ones. Exotic breeds barely sustain in the resources and environmental stresses. Many farmers, mainly landless and small landholders are keeping the indigenous livestock due to access to the forest resources and the other management merits. Farming with the exotic breeds requires costlier inputs and services that most poor farmers cannot afford to keep on livestock business at a normal scale. The interventions will compel the resource-poor farmers to give the farming and be displaced other areas and businesses. This may reduce the use of the forest resource which can be also another hidden intention of the agencies. Moreover, the agencies have intended to replicate the policy approach in other parts of Nepal and similar other countries. “[i]t is an excellent pilot model of community conservation at the scale that can be used in two additional sites in Nepal and in many sites elsewhere globally” [27]. If the agencies get success to implement the evil intent landscape program, indigenous assets of most parts of the country will be seriously lost. It is well proved from forest conservation programs in hill areas [19,20]. The landscape decarbonization policies and programs will make most of the resource-dependent people and especially women seriously marginalized and suffered. They can be considered internationally planned and organized crimes by so called environmentalists against nature and humanity.



Figure 8. Zones of conservation landscapes in Nepal [Source: [24]].

Manipulative Work of Environmental Agencies for Foreign Benefits

Misleading information and working practices of environmental conservation agencies have played crucial roles in the destruction of indigenous assets or regenerative practices. For instance, the World Bank and ICIMOD advised and supported the Nepal government to manage community forests for trading forest carbon forestry credits [22,26]. The carbon sequestration requires increasing tree stocks and carbon which hampers the production of other products for economic and non-economic uses. The forest carbon trading is not selling like an orange crop of a harvesting season. The sold quantity of carbon must be kept safely

on the forest site indefinitely, otherwise, it makes no sense for climate change mitigation. In addition, the forest holders, under the current international carbon trading policy, get income from the carbon trade only one time unless an additional amount of carbon is stored. Additional carbon storage is a too costly endeavor in most cases. Moreover, managing the community-based forests for trading forest carbon and ceasing other economic uses results in socially, economically, and environmentally inferior outcomes in the countries like Nepal where people have suffered from food shortage, income, employment associated with land scarcity. If the forestland use in carbon forestry would be a profitable option, why land rich countries with high GHG emission problems have used their lands in GHG emission-intensive livestock farming instead of the carbon forestry business. For example, the Swiss government has paid the farmers to practice livestock grazing in the forests to conserve genetic resources of indigenous livestock breeds and rural heritages [129,130]. The country has allocated less than 10 percent of lands (much less than the global average) under protected areas [89]. The US government authority has leased 155 million acres of public lands for industrial-scale livestock grazing [131,132]. The Forest Service of the USA, one of the biggest GHG emission producers of the world, justified online to allow livestock grazing in its national forest as “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” [131]. Australia has leased 338 million ha (approximately 44% of the national area) land for large-scale livestock grazing [133]. It has recently passed laws allowing farmers to graze livestock in other national park areas too. The UK government has also allowed grazing recreational purpose animals such as horses in a public forest. The country has used almost 71 % of its national land in farming and only 13 percent areas in forestry [89]. In addition, the average farming landholding of the countries is 4331 ha, 87 ha, 170 ha, and 20.5 respectively, for Australia, UK, USA and Switzerland, the [134–137]. These land holding figures are incomparable to Nepali farmers who hold an average of 0.7 ha private land. The community forest size is on average 74 hectares per 100 households [84]. The economies of all these countries are GHG emission-intensive. The countries have sought solutions for offsetting the emission from overseas to avoid their land resource locking forever for forest carbon sequestration and climate change mitigation. The international experts working in the natural resource policy field know those potential social, economic, and ecological harms associated with carbon forestry with common sense. They provided misleading information and advice that resulted in harm to indigenous assets in Nepal.

Community land resources have pervasive and invisible attachments in various social, economic, and ecological systems in the mountain regions. Some of the systems are geo-ecologically and institutionally vulnerable. The phenomena are very complex to understand. It is well evidenced that interventions in the resources management based on blurred and faulty problems have hampered agrobiodiversity, food security, resource economy, and social affairs [19,77,79,80]. International agencies were supposed to recognize and care for the vulnerable systems while providing support to the government and other agencies. But they have neglected these issues in providing support in managing community forests though they promised to provide better quality services lacking in the country. ICIMOD, for an instance, supported Nepal to implement carbon forestry (REDD) with the claim that it brings more benefits to the mountain community “... government officials, researchers, and practitioners are being trained in establishing REDD+ desks at sub-national levels. Training in safeguards, in approaches such as free prior informed consent (FPIC) or monitoring, reporting and verification ...” [138]. Many adverse impacts and especially resulting from institutional evolution and resource development processes are uncertain and complex to understand even by most experts. It is almost impossible for the communities to give informed consent. The forest resources provide many complex non-material benefits for society. Conventional costs benefit analysis cannot account for potential harms in indigenous assets from the carbon forestry scheme. The harms are least likely to be compensated by the income gained from the forest carbon credit

selling in most community conditions in Nepal. Free prior informed consent is rhetoric in Nepal's sociopolitical context. Some international agencies often require reports of local stakeholder consultations for their official purpose (e.g., as a proof document of local consent or support for a program implementation). Such reports are mostly prepared at last hours of signing final agreements [27]. The consultations and consent reports are made just for formality. Many agencies ignore for local consents. The World Bank, for instant funded government to develop a forestry plan for the forest carbon credit selling of seven Terai districts immediately after the Bali summit, 2008 without consultation with local communities. The forests are a source of livelihood for a large number of landless and nearly landless people. It did the forest carbon credit buying agreement without valid consultation with local communities even after 12 years of work [139]. Recently an international agency, the Lowering Emissions by Accelerating Forest finance (LEAF) Coalition) did an agreement with the government for trading forest carbon credits of three provinces in climate submit 2021 and without informing local forest user groups and even national level stakeholders [23]. The uses of policy process tools (e.g., free prior informed consent and stakeholders consultations) are in reality propaganda to deceive the public for grabbing resources of communities. These types of misleading and resource-grabbing works of the international agencies have hampered the forest resource-based indigenous assets.

Incentives to Favor Foreign Countries

Many international funds (e.g., GEF and forest carbon partnership fund) are created to attract the government of developing countries to use their forestland for carbon sequestration. The agencies working in the biodiversity conservation field have numerous miscellaneous funds that they used to motivate influential personalities to support their work. The funds have attracted the Nepalese corrupt bureaucrats to follow the policies against the nation and communities [23]. The fund has attracted even international agencies to work harming indigenous resources and systems. The fact is well evidenced in the following statement of ICIMOD, a UN subsidiary organization established for helping governments in the Himalayan region in the integrated mountain development concept.

“As we embark on this decade of ecosystem restoration, we commit to assisting our regional member countries in taking significant steps for planning and implementing large landscape-level restoration. In the past, through our REDD+ program, we have been successful in designing regional-scale restoration programs in the participating RMCs (Regional member countries) that leverage climate finance for national-level implementing partners in different countries. We have also built the capacity of national partners for implementing restoration programs. We are now exploring opportunities for leveraging carbon finance to support afforestation activities in Nepal that will be implemented by national-level institutions. To begin with, we are in discussions with provincial governments in Nepal through the National Trust for Nature Conservation (NTNC) to explore the possibilities for restoring up to 15,000 ha over the next decade in partnership with community forestry user groups. This, in essence, is an example of how carbon finance can be leveraged for achieving the goals of the UN Decade on Ecosystem Restoration” [22] 2 June 2021.

The mountain region of Nepal has predominantly human-modified ecosystems established for millenniums [75]. The ecosystems best thrive in production forestry with moderately open canopy conditions. Production forestry also fosters indigenous resources, institutions, and social-ecological systems. As stated in the declaration, the target areas of the ecological restoration are community forestlands. Trees are already overstocked in most of the forests and have hampered production and access of forest products and services of regular household needs of local communities. Most of the mountain forests require destocking many trees to restore mountain biodiversity with local importance and produce forest products and services for regular needs for farming and other household needs. The ecological restoration program is primarily motivated for forest carbon seques-

tration which makes the indigenous assets worse. It is common sense knowledge that ecological restoration and forest carbon trading reduces the growing and availability of forest products and services important for the livelihood of vulnerable households. The claim of the foreign agent about the benefit of carbon forestry and ecological restoration is misleading. Independent studies also proved that the REDD program made communities vulnerable and marginalized [79,140]. Conducting the experimental study of ecological restoration on the resources is itself an unethical practice. The agency has used the misleading argument to show their work in this field and obtain funds from international sources mainly donated by developed countries. This is a behavioral example of a multilateral (UN) organization that has been housed on Nepal's soil and established to provide specialized technical expertise for integrated mountain development. The case is sufficient to understand how bilateral agencies (e.g., the USAID and DFID, INGOs (e.g., IUCN and WWF), and other multilateral organizations (e.g., World Bank, ADB, FAO, and UNDP) have misguided the Nepal government and communities in managing the land resources to conserve indigenous assets for the wellbeing of mountain communities.

5.3.2. Climate Change Policy Implementation

Some organizations and social groups have special interests in climate change-related issues in Nepal due to the presence of the world's highest mountains with unique agro-climatic and ecological conditions [107,108,141]. Researchers of different disciplines have worked here to make an understanding of climate change problems in the world. Influential personalities have often misinterpreted the environmental and resources dynamics of the complex mountain systems. Some of them made false claims due to using the information of technically erroneous and short-term data and with little understanding of complex mountain systems and other local contexts. Some others exaggerate blurry information-based phenomena to show their intellectual capability and uplift their professional credits [107,108,141]. The Nepal government officials did not verify faulty information and hastily considered the erroneous claims in national policies. For example, the environmental expert stated that anthropogenic emission increased temperatures in the mountain much higher than anywhere. The Himalayan Mountain peaks are said to be devoid of snow by 2035. When the claim seemed to be flawed, international environmentalists reclaimed that 1/3 to 2/3 part of the snow volumes of the mountains will be lost by end of this century. More importantly, they highlighted that snow loss would bring about the huge water crisis, food shortage, and socio-economic problems in the region. The message has induced some panic feelings and influenced government policy decisions and development activities for reducing the climate change problem [107,108,141]. The government brought the policies to make excessive use of forest resources in climate change mitigation. For an instance, the current Forest Act 2019 dictates that communities retain an existing quantity of forest carbon stock while utilizing products and services of their forests [63]. These policies have harmed the use of forest products and services for sustaining indigenous resources and systems.

5.4. Protected Areas

5.4.1. Protected Area Policy

Management of Land Resources for Foreigners' Benefit

Generally, indigenous practices are evolved and sustained on local natural resources including biodiversity. Genuine biodiversity conservation policies and practices, therefore, advantage indigenous resources, institutions, and systems [142]. But unfortunately, biodiversity conservation policies are formulated for the best interest and benefit of developed countries which have hampered the indigenous resources, institutions, and social-ecological systems. For instance, the protected area policy dictated establishing most national parks and other conservation areas in the highest mountain region (Figure 1) and beyond needs [81]. The species of this region have fewer threats to be declining due to locating in remoteness and easier to be escape sites. International agencies of developed

countries provided policy advice and funds for the government agencies to establish conservation areas in the regions and conserve the special recreational interest sites of tourists from developed countries [143,144]. The resources in the areas by the policy are managed under an intact system. The management enhances the recreational tranquility of the site. The management has fostered the growth of aggressive species that have suppressed other species valuable for sustaining indigenous farming practices. Indigenous livestock grazing practices had suppressed the aggressive species.

International agencies attempted to manage resources of protected areas in very destructive manners to indigenous assets to enhance recreational site qualities (tranquility and serenity). For example, the international agencies (FAO, UNDP, and NZAID) supported the Sagarmatha National Park (around Mt Everest) purely for a recreational purpose similar to Yellow Stone National Park in the USA [74,144]. The agencies advised and planned to make the region out of farming communities and settle the Sherpas communities evolved in high altitude climate into Terai, very hot and humid areas. The government, probably the royal palace, refused the relocation plan when a mass death of high altitude people (Tibetan refugees) occurred in Pokhara, a moderately hot climate valley [145]. Then they attempted and became successful to introduce the policy of restricting goat farming in private lands. Indigenous goat farming is legally banned even in private lands [146]. The ban has abolished the goat population and other associated agrobiodiversity resources evolved in such a highest altitude region of the world. Many other indigenous livelihood assets are lost when the foreign agencies occupied livelihood resources of barely surviving communities to develop the national park of the foreign agencies' recreational interests [147]. However, Sir Edmond Hillary, who initiated and led the park establishment work, claimed that the establishment of the park prevented the areas to be a desert [128]. Studies provide different realities that improvement in the indigenous system would better conserve the forests and agrobiodiversity as well as support the livelihoods of people of the region [147]. After establishing the national park, one of the leaders of the community that helped Hillary to be the world hero had expressed frustration that "Hillary first brought sugar to the lips of the Sherpas, but he is now throwing salt in their eyes" [128] (p. 702). Now, the national park has been registered as a world heritage site, a property of international societies [146]. The loss of indigenous assets with the park establishment has made the local communities and especially poor households suffer forever [147]. There is little chance to revitalize the indigenous assets in the local community's freedom. These are common phenomena of how international agencies occupied the land resources in the name of biodiversity conservation and destroyed indigenous assets of the mountain communities.

The government blindly followed such harsh intervention approaches in many other communities where such protected areas are establishments. For example, it followed such community relocating advice of the international agencies and vacated whole communities of Rara National Park areas. They were resettled in Bardia district, one of the hottest places where several of the relocated people died much earlier than their average lifespan [74]. The indigenous resources that evolved in the region have been disappeared there. They ignored the fact that farm-forest integrated production system with moderately open canopy condition of the forest had let the existence of natural forests and wild mammals around human settlements in the areas for millenniums. It is a natural phenomenon that wild animal proliferates in limited numbers where humans and wild beasts share the same resources and coexist in the same territory. But these agencies sought to have an abundant number of wild animals and devoid of human economic activities in forests for addressing the tourists' recreational interest. Such ill intention made the loss of indigenous resources, institutions, and systems in high-altitude areas.

Instead of rigorously evaluating the advice and support of the foreign agencies against national context and interest, the government introduced many binding policies and programs of land resource use in the name of conserving wild animals and some endangered plant species outside special conservation territories [74,147]. They advised and funded even the relocation of primary communities in the drastically different agroecological

region at a distance to make the region more enjoyable for recreation. The policies and programs have dictated to use of excessive areas in wildlife conservation and restricted community indigenous uses of land resources. The conservative policies and practices have increased wildlife incidences on farmland and hampered farm manure production. The problems have consequently abolished the practices of growing many indigenous crop varieties that could be grown in marginal lands during the fertilizer crisis.

Nowadays, international agencies advise and fund to expand protected areas as much as possible to increase forest carbon sequestration. That extent of areas is not necessary to conserve local biodiversity species. For example, they advised extensions of most protected areas in high altitude regions for conserving red pandas, but the species roam mostly in the limited range of its core habitats [148]. Forest resources management for addressing multipurpose needs of the community could provide adequate habitats for species roaming in wide territories or animals wandering away from core habitat areas. Managing local resources with indigenous systems would foster the wild biodiversity conservation objectives in high-altitude regions.

Reckless and Unethical Working Traditions

The international environmental agencies advised government expansion of protected areas in the human settlement and relocated some communities as if the communities were recently settled by encroaching habitats of wild animals [147]. The experts came from another ecological background and did not recognize that the mountain community had lived here for millenniums by practicing wildlife-friendly resource management practices. If the mountain communities had not developed locally suitable social-ecological systems and institutions, the landscapes would rarely have any native biodiversity resource, which we can see in the farming landscapes of European settlers in the USA and other developed countries. New conservation policies have now criminalized the uses of some of the indigenous resilience resources traditionally used for living [147,149]. The protected areas are expanded mostly in the localities of the pristine indigenous communities who lived on forest or other public land resources and contributed to enriching and conserving mountain biodiversity for millenniums. Sivinki (2015) provided some naive examples of how conservation policies crushed high-value indigenous institutions in protected areas where the resources are managed to quench wild thrusters of foreign tourists [147]. The rules have harmed community farming resilience and the opportunity for genetic evolution of regionally valuable cultivable plant species in local agroclimatic conditions.

The indigenous assets including wild animals were protected due to compromising the land resource-based livelihood by local communities. The conservation authorities have treated the local people as pests and evil individuals for biodiversity resources and discouraged following indigenous practices. They have made the resources curse for the local communities [150–152]. Even now, international agencies have provided rewards and funds for development agencies to discourage local communities' uses of protected areas resources [149–151]. In making current biodiversity conservation strategies, they have advised translocating some communities for developing naturally intact habitat conditions and reducing human harm to wild animals [25,64]. When the conservation policies came into effect, many households were compelled to downsize their livestock and abandon many forest resources based on economic activities and cropping in the private lands [70]. The new management system also increased biotic problems (wild beasts destroyed crops and livestock and scared farmers). The households with meager private lands could not manage their lives and livelihoods that were traditionally complemented by public land resources. The policy ultimately resulted in the displacement of the communities from original residential localities [70]. The displacement of the communities has consequently hampered the evolution of indigenous animal breeds and plant species and has resulted in the degradation and extinction of indigenous assets.

Threats for further degradation of the indigenous assets especially close proximity of big urban areas are increased. Recently the government agency declared conservation

areas for the community forests mainly at a day trip proximity from big cities: Kathmandu and Pokhara. Forest user groups have protested against the new policy initiative. The local people are, however, little aware that the forests are managed under a special conservation regime to secure lands for forest recreational services, especially to the urban people and elite class. The policies of conservation area management create a lot of problems to use the forest resources which makes serious harm to indigenous assets [152]. The forests could provide almost the same level of recreation service if they were managed to meet multiple forest product needs of the local communities. The management would also contribute to conserving the indigenous assets. But the government bureaucrats officially declared the forests as special conservation areas to get foreign grants. The foreign agencies prefer funding for managing a forest under a conservation regime as it sequesters more carbon and provides other indirect benefits for developed countries. The policy initiative makes serious adverse impacts not only on indigenous assets but also livelihoods of many resource poor households. It is also a seriously unethical policy practice to occupy traditionally used livelihood resources of poor communities for recreational and other the benefits of national elites and foreign affluent society. Foresters, by profession discipline, are institutionally and morally responsible for scientifically and socially dealing with these critical issues. But they have rather expressed happiness and indirect support in social media for the socially unfair and unethical policy initiatives when the government authority officially shared the government decision in public media. The responsible group, by education background and workplace socialization, has been oriented to work mostly in favour of the well off and other elite groups and care little on suffering of forest-based communities. The indigenous assets, therefore, are degraded to extinction due to such common interests of national and international powerful actors to seize the resources for the benefit of national elites and foreign societies.

Outdated policies have also contributed to the loss of indigenous assets. The first wildlife management act was introduced to make acquiring community territory including private land legal for wild life management and to increase their number [131]. The government has hardly amended them to the conservation acts and other laws to control overstock wild animals and invasive species for many decades, even though the overstocked animals and plant species have been counterproductive to enriching habitats for many species and performing environmentally friendly farming activities. The harsh policies have also made forestry, farming and other development activities too much time-consuming, and bureaucratically cumbersome to deal with government officials even if the community activities contribute to holistic biodiversity conservation. Even the government officials with pro-community attitudes have been compelled to work against local communities and indigenous practices.

Meta-Species Oriented Policy

Conservation scientists and experts have been educated on values and practices in western countries where extremely low levels of biodiversity resources are present in farming lands. Meta-species are managed away from residents and in special sanctuaries. They value wild animals and the most charismatic species for recreation. The situations in Nepal are extremely different from those countries. Most of the rural communities in the country are primary in characteristics and lived in centuries-long residential localities. They have hosted many biodiversity resources for sustaining the daily lives of people. The forest-farm mixed landscapes have hosted many wild animals including mammals. Many species like to roam in moderately open spaces. But the importance of indigenous farming and primary communities in the conservation of biodiversity resources are little recognized in the policies. It is because foreign agencies helping Nepal little valued on primary communities and indigenous management of the resources. National officials are supposed to give attention to these issues. But the people even including scientists working in wildlife conservation have extremely conservative attitudes and values, who have focused mostly on charismatic wildlife species in full carrying capacities [153]. They

did not recognize the concept of a broad ecosystem-based management approach (contrary to the intact approach) that is suitable especially in Nepal's mountain context.

5.4.2. Protected Area Policy Implementation

Lack of Utilizing Opportunity Given by Policy

Implementation level officials are supposed to understand local issues better and work for addressing them using the available rooms and discretions authority provided by policies. For instance, they know well how primary communities conserving indigenous varieties and breeds have been compelled to be displaced or abandon their residences and farming lands due to excessive incidences of wild animals in their farm and communities. They also know that many economically valuable species thrived in the landscapes and contributed to indigenous community practices such as indigenous knowledge systems, medicinal uses, and forest-based foods. The management promoted aggressive species in modified and open spaces, which suppressed and destroyed indigenous systems and resources. The officials could address the problems but they cared little about the sensitive issues and followed the foot of foreign agencies. Field officials have rather frequently harassed local communities to use traditionally available residual products of the conservation lands [147,150].

5.5. Problems Common across the Sectors

5.5.1. Abuses on Civil Societies

Civil societies are generally key actors in safeguarding community interests and indigenous systems [154]. However, international agencies have used various strategies and neutralized such protective power of civil societies to achieve their hidden interest. For instance, they have worked in partnership with the national body of forest user group (FECOFUN) and associations of indigenous ethnic communities, a sort of trade union to protest against regressive policies and practices, and lobby for pro-community policies. These organizations have regularly received many incentives including grants (e.g., organizational expenses and national and international traveling funds) and transportation facilities. The facilities and partnership works have influenced or neutralized decisions and actions of leaders in the organizations of the social groups against potential confrontations and made it easier to escape from the blame of community harm from their advice for regressive resource use policies [78,113]. Despite knowing adverse outcomes in communities from many programs with international initiatives and supports, for example, the carbon forest (often called REDD-plus) program, protected area expansion activities, and landscape decarbonization program, the leaders of FECOFUN and indigenous ethnic group federation could not have an effective voice and take actions against the agencies. The multi-stakeholder forestry program gave consultancy work to the FECOFUN executive members and made it keep silent to develop a current forestry sector strategy (long-term plan) that is regressive to local communities [78]. The chairperson FECOFUN provided written consent on behalf of forest user groups for trading forest carbon credit with the international agency (LEAF) without informing real forest users [23]. International agencies paid travel costs of the national-level chairperson of forest user groups for attending the Glasgow climate summit where the government and international agencies pursued her to sign the forest carbon selling agreement on the behalf of the forest users. Many indigenous ethnic communities have managed their livelihoods from resources of the forests that World Bank recently purchased forest carbon credits. The Bank has given some funds for the federation of indigenous ethnic communities that made the leaders of the association remain silent on the resource grabbing agreement. Civil societies, thus, have been abused from partnerships and incentive strategies of the agencies. Other social groups that suppose to voice against the inappropriate work of the government and international agencies are academicians and another intellectual group. International agencies have provisioned job and scholarship opportunities with attractive remuneration which have made the academicians and intellectuals silent on the inappropriate work of international

agencies [27,65]. International agencies such as WWF and IUCN have provided consultancy and other international opportunities even to the families and relatives of politically powerful personalities and utilize the power of the personalities to achieve their goals.

5.5.2. Intentional Problems of Experts and Authorities

Experts of developed countries have instrumental roles to develop and clutch international environmental conservation policies. They have worked in the problem context and in favor of their home countries [57,82,124,126,155,156]. They little cared that the policies especially land-use-related to bring benefit for their home countries could be destructive to social, economic, and ecological systems in some developing countries including Nepal. For instance, they introduced the forest carbon trading policy (REDD) to offset GHG emissions and save the emission-intensive economic activities of developed countries [126]. Recently international agencies have worked with the government to introduce the policy of the UN decade of ecological restoration [22]. These policies have undermined the crucial importance of forest resources to make social, economic, and ecological systems functional and support the lives and livelihoods of most rural people. The foregone opportunities with the policy associated restriction of the resources uses cannot be replaced or compensated by the income from carbon credit trading. The degraded look of the forest is a natural attribute of multipurpose use natural production forests that the community using for centuries. The forest-based communities require managing the forests in moderately open canopy conditions for producing the multiple goods and services essential for their lives and livelihoods. Nepal can reduce GHG emissions and conserve biodiversity better with the management of moderately open production forests than naturally intact forests. In other words, Nepal requires managing the forest for multipurpose economic uses for functional biodiversity conservation, food security, economic functioning, social security, and cultural identity protecting. Experts working in Nepal and especially in the forest resource management field are supposed to know these facts with conventional knowledge. But the agencies undermined the lives and livelihood of the communities and tactically pushed the government agencies to manage the forests for carbon sequestration and other lands for landscape-scale decarbonization and increase luxury for affluent societies overseas. They committed a serious degree of bad (inexcusable) and ethically intolerable interventions. The government cooperated with the vested interest agencies instead of protecting national opportunities and the wellbeing of the citizens.

International technical assistance is supposed to be of high scientific quality for addressing the knowledge and skill gap in assistance-seeking countries. In practice, the aid agencies employed mostly the citizens of funding countries, of European origin, or persons with other special relations. The employee had a low level of professional expertise essential to deal with social and ecological sensitivity attached to the land resources. The expatriates became over influential in program designing and implementation and dictated institutions and practices according to their interests, visions, exposures, and western values [27,56,75]. The supports of the expatriates were low quality in the complex community context. The government officials did not dare to point such weakness or scrutinize inappropriate behaviors of the experts for keeping good relationships with international agencies and receiving other support in the future. In many cases, government officials accepted foreign experts' advice to please them and to reap private benefits (e.g., foreign exposure tours or training) of foreign aid that the experts had greater decision power for awarding.

6. Discussion

This study aimed at explaining the working problems of government and international agencies that resulted in the continuous degradation of locally developed resources, institutions, and social-ecological systems in Nepal. The country has limited scopes for market-oriented farming practices due to geo-ecological and landholding constraints. The mountain communities had developed and adopted local conditions specific resources and practices. Family farming and regenerative resource management practices had sustained

the indigenous assets. Livestock and forestry resources were complementary capital of indigenous farming. But external agencies dictated to follow the farming resources, systems, and practices of developed countries and other geo-ecological regions. They neglected the resources evolved in mountain social-ecological systems with millenniums-old community practices. The new farming system required extremely market-based production inputs and newly developed institutions. Some new resources and institutions were replaced and others displaced the regenerative resources and practices. Side by side, the external agencies introduced wood and carbon sequestration-oriented forest management practices in some areas and recreational forestry in other areas. The institutions hampered the farmers' access to and use of forest products and services of daily needs for farming and other indigenous economic activities. In other words, that destroyed the farm-forest integrated farming systems, the backbone indigenous assets. The forestry also hampered local social-ecological systems which had sustained indigenous resources, knowledge, and institutions. The external agencies treated the indigenous resources, social-ecological systems, and institutions as inferior ones and promoted the farming based on market inputs and external services. They overlooked resilience and other indirect economic, social, and environmental strengths of the resources, systems, and institutions. Interventions in policies and community practices were done strategically to make the changes. The work of making changes on centuries' old life-supporting resources, systems, and institutions of geo-ecologically and institutionally unique communities is a very sensitive subject. But the agencies little valued the sensitivity and neglected to follow the due diligence working principle and consider local contexts.

This study also showed the instrumental roles of foreign agencies to make changes to the indigenous assets. The agencies influenced too much in developing long-term plans and policies. The agencies neither could understand the values of the assets in the unique context of the countries nor had the motivation to work for the long-term national security of the country. They rather took advantage of the opportunities of involvement in the policy development implementation and meddled on them to address their best interests. It is obvious that the forests and livestock grazing lands are managed for dumping excess (GHG emission) and quenching wild thrusts mainly of developed countries. The public land resources managed for multipurpose uses with moderately open space conditions would help to conserve many environmental resources and benefit local communities. The agencies have advised and funded to manage the resources in the further intact system. This finding is similar to the finding of an American scholar, Metz (1995) who concluded that the support of the aid agencies was an investment to keep the development of Nepal's stagnant condition and take long-term advantages from it. His study suggested that the policies formulated by national experts would bring much better benefit to Nepal [38]. The case of the public land use intervention is consistent with the argument.

This study also identified many faults of the government agencies that harmed the indigenous assets. The faults include negligence in work, obsolescence knowledge, bias towards career areas, and show flash work progresses. The most critical issue is that national agencies delegate policy formation works to international agencies for making their work-life easier and receiving extra personal benefits from foreign aid. The government agencies let the foreign agencies formulate and meddle in policies and legitimize them with little verification to receive lucrative incentives from foreign aid. These behaviors are common problems of people working in the institutions of rogue bureaucracy and poor penalty and reward systems. Metz (1995) also showed that foreign agencies accepted the prevailing socio-political problem (corruption, inequality, and inefficiency) and colluded with national elites to achieve their other hidden intentions in Nepal [38].

This study presented several work approaches that external agencies followed to address self-centered interests. The agencies abused (resulting inexcusable harms to others by unethical uses of work approaches or powers such as using flash foreign grants to motivate the community for planting timber value forest species in community pasturelands for offsetting GHG of polluting industries and affluent societies) or misused (using of unrecommended tactics such as using false information to obtain community consent for

implementing locally regressive environmental conservation programs) policies to address self-centered interests in some situations. They are overused (excessively used such as free inputs or their price subsidies), disused (not used such as due diligence working approach in vulnerable communities), or poorly used (formality using recommended approaches such as stakeholder consultation including free prior consent) in many other situations. The approaches are much broader than those listed by Freedman's (2015) study [46]. The agencies receive more tangible (financial allowances and other physical facilities) and intangible (happiness from seeing rich tree stock in the forest) gains from management for foreign benefits. The main intent of agricultural-related agencies is to make maximum use of modern agricultural inputs and practices to show flash agricultural growth. The flash growth provides them both tangible (job security and foreign grant) and intangible (work achievement happiness) gains. Choices of the working approaches including working attitudes and behaviors of the agencies are over-influenced by foreign knowledge, cultures, and financial incentives. None of the agencies intended for the conservation of indigenous assets or for securing the long well-being of the local community. The agencies have rather considered indigenous assets as barriers to achieving their ulterior goals.

Many cases presented in this study support that the international agencies misguide Nepal for ulterior goals. The forest resource-based livestock farming is based on naturally grown fodder and pasture which is much friendlier for climate change problems than the chemical fertilizer-based livestock farming of developed countries. In addition, the multi-purpose production forestry is the natural-based solution for livelihood, GHG emission reduction, and biodiversity conservation. However, the agencies purposively and intensively destroyed them which has affected most indigenous ethnic groups. They did such crimes against nature and humanity in other institutionally weak societies and especially indigenous communities. For example, the USAID funded abolishing indigenous ruminant livestock and crop varieties and afforest in the livestock grazing pasturelands of an indigenous ethnic community in East Khasi Hill Meghalaya India for trading forest carbon credit to protect GHG emission-intensive national economies of the USA [113,157]. Shrestha (1990) also stated that developed countries worked in Nepal to secure markets and resources open for their benefits [158]. The reduction in livestock holding and increasing of abandoning of arable land from farming associated with forestry management problems has increased the opportunity of selling food products of the farming land-rich countries. Metz (1995) made a similar remark that "[B]ilateral donors, of course, operate primarily to promote their own strategic and economic interests, despite their altruistic rhetoric" [38] (p 183). Therefore, foreign countries might have intentionally played roles in spoiling the indigenous resources and farming systems many other long-term benefits. It is a further investigable subject that why international agencies mostly grabbed the livelihood resources of the societies and especially indigenous communities that have followed the most environmentally friendly forest resource conservation.

The study explained the instrumental roles of foreign agencies in the degradation of indigenous assets. The agencies made interventions on the resources from international environment political forums, policy level to community level. Development agencies are supposed to work based on science and result in better outcomes for the targeted societies. But most of the interventions are not based on science and are regressive for both environmental conservation and poverty alleviation. Despite the socially unfair and unethical and biophysically regressive activities, these agencies have continued the work in unity. Special incentives are also offered to the governmental bureaucrats, key stakeholders, academicians, and other intellectuals to pursue them for developing new institutions and managing the resources in the way the foreign agencies wanted. The national agents have not opposed even on very sensitive issues such as making some ethnic communities suffer for generations, jeopardizing food and economic securities of marginalized social groups, and compromising national sovereignty. Metz's (1995) study also shows that the international agencies have taken advantage of corrupt, rouge, and reckless working traditions of government authorities and other national elites of Nepal to achieve their

goals [38]. Considering the international hegemony theory, these cases and phenomena are strong indicators of systemic foreign oppression on society and colonization in the land resources [35,36,57]. It is a common phenomenon that colonizers destroy the resources, social-ecological systems, and institutions that hinder addressing their best interests.

7. Conclusions

Many theoretical and policy implications can be drawn from this study about the loss of indigenous resources, social-ecological systems, and institutions that had sustained regenerative agricultural and forestry practices. The primary cause of degradation of the indigenous assets is providing foreign agencies opportunities to meddle in policy formulation. The agencies made the policies that have dictated the agriculture development of extremely human-made and imported input-based systems which harmed the indigenous resources, local institutions, and regenerative farming systems. Interventions of foreign agencies also destroyed forest and farm integrated production systems which was the main pillar of sustaining the indigenous assets in the mountain community context. The agencies dictated forest resource management in a naturally intact system which hampered resources and community practices essential for conserving the assets. The international organizations have strategically and intentionally intervened in policy formulation and implementation to dismiss the indigenous resources, institutions, and production systems of the agriculture and forestry sector, mainly for the best interests or benefits of developed countries. International environment conservation policies reinforced the assets' degradation. The intentional works of the agencies resulted in the persistent degradation of the indigenous assets. Looking at the current international policies and programs of international agencies, the degradation of indigenous assets will be further worse. The above findings also imply that international environmental agencies may not let communities practice local resources-based solutions and forest resource-based measures for sustainable living, especially in institutionally weak countries including Nepal. Revitalization of regenerative farming practice and forest resource-based economies in Nepal is less likely unless the international agencies are kept away from involving and meddling in policy development and implementation. Integrated management of forest and agriculture resources in both policy and practice levels are prerequisite to halt and reverse the assets' loss especially in the mountain regions. The integration would also reduce food security and many other social problems in the rural areas. It may be too late when the key culprits realize their own faults to be the assets lost and the community suffered.

The experts of both national and international agencies have abused and misused some strategic tactics and poorly used, disused, and overly used the other to address their self-centered interests. Science theories are also misleadingly interpreted to make interventions on policy and implementation of resource management and result in benefits for other nations. Collusion with the government agencies is another strategic tactic the vested interest agencies applied to dismiss the indigenous assets and achieve their goals. The financial incentive tactic of international agencies motivated the government agencies to manage forest lands excessively in favour of developed countries though the excessive land use is against food and other securities of local communities and nation. Many other self-centered interests and problems are found driving external agencies to behave and work misleadingly to communities. The common factors for national agencies include negligence for easier working life, having the job with obsolete knowledge, work of personal bias or interest areas, motivation for lucrative benefit from foreign aid, and showing flash work progress. Most indigenous assets of the mountain are attached to the forest resources that the foreign experts targeted to manage for global environmental conservation. The interventions in forest management potentially addressed their multiple interests: job, professional value, and home country environmental problems. The harms in indigenous assets are tradeoff outcomes of the uses of the base resources for global environmental conservation. It implies that the works and other inputs of foreign experts need to be watched seriously from now on.

Many other theoretical conclusions relevant to the issue can be drawn from this study. International organizations working for global environmental conservation may further destroy indigenous heritages including regenerative resources and hamper sustainable living opportunities of institutionally weak societies. Institutionally weak societies with rich natural forest resources are also likely to be lured by materially and symbolically powerful international environmental agencies. The agencies may interpret scientific facts misleadingly and use multiple strategic tactics extensively to control land resource uses in the societies remotely. Spreading environmental havoc is a powerful strategic tactic that they can use first to lure and control the institutionally weak societies and get benefits from the resources. Some evil interest people have controlled on international policies and program of global environmental conservation agencies. The international organizations can be considered vehicles and shelters for the agents of powerful countries to grab resources of institutionally weak societies. This study reconfirmed the saying that international organizations are established for altruistic goals, is rhetoric. In essence, the involvement of the agencies in policy development is most likely to destroy national indigenous heritages and further jeopardize the national food securities of institutionally weak countries.

This study focused only on the main problems of the indigenous asset degradation associated with the work of policy and development support agencies. It has not covered many other problems and specifically represents different ecological zones and social conditions. This study has not also well accounted for aggravation of the mountain community vulnerability associated with the asset degradation. Future studies on those issues would provide further interesting and useful information.

8. Strengths, Limitations, and Declarations

This study investigated the indigenous asset degradation problems associated with self-centered interests and problems of national and international agencies involved in agriculture and forestry-related fields. Many critical issues are pointed out and investigated, which were hardly documented in previous studies. The services of the external interventions are not always bad. Some of the problems might have resulted due to some problems internal to the organizations. This study could not account for the problems. In addition, not all indigenous practices and resources are robust and result in the best consequences for all social groups or communities. There is some room for improvement.

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Informed Consent Statement: This study was based on secondary sources of public information, which does not require consent to publish information.

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