Chapter

Grasslands Development for Ecotourism: Aesthetic Perspectives

Raina Ijaz, Nidaa Harun and Muhammad Aamir Iqbal

Abstract

Grasslands (also known as savanna, prairie, steppe, and pampas) are natural or seminatural areas encompassing vegetation belonging to the family Poaceae as the most dominant vegetation, while, sedges and rushes may also constitute a minor proportion. These provide numerous natural products such as food feed medicinal raw material, and honey along with nonproduct-based ecosystem services. Grasslands in lowlands and mountains either in natural form or developed landscape can provide an added value in terms of ecotourism opportunities owing to having huge esthetic and recreational potential compared to uniform agricultural areas. Grasslands characterized by high species and habitat diversity-based ecotourism are nature-based tourism whereby people visit natural or developed areas for recreation, sight-seeing, permitted and controlled hunting, on-site purchase of organic products, etc., and are usually managed by adopting sustainable practices. Ecotourism generates multifaceted economic advantages for local communities such as direct sale of products to tourists. However, ecotourism may also have a variety of negative impacts when the tourists' number multiplies which leads to overuse of resources. The most pronounced challenges confronted to the development of grasslands for ecotourism include lack of community cooperation, careless herders, need of hefty investment, and absence of trained human capital along with climate change and loss of biodiversity.

Keywords: agronomy and horticulture, prairie, pampas, herders, rangelands

1. Introduction

Grasslands (natural or developed areas entailing predominantly grass species with meager shrubs along with other vegetation like trees) are one of the vital elements of terrestrial ecosystem for having economic, social, ecological, and cultural roles [1, 2]. The raising of dairy animals in a grassland-supported feeding system provides farmers with decent revenues. These not only constitute as the vital source of feed for milch and draught animals but also their importance in terms of forage quality association with animal-origin products is beyond any shadow of doubt [3, 4]. Grasslands hold potential to not only provide hefty quantities of food and fiber but also play a pertinent role in imparting sustainability to the ecosystem. It deserves mentioning that grassland ecosystems represent a vital sustainer of biodiversity by offering optimal conditions pertaining to diversified species and habitats for birds, animals, and invertebrates. However, in order to halt biodiversity loses, there is dire need to

strive for conserving the grasslands through wise and sustainable uses. Along with habitat protection and species conservation, grasslands contribute to enhancing the quantity and value of traditional products (medicinal raw material, forage, grasses for beverage, honey, etc.) along with non-commodity outputs in the form of balanced ecosystem functioning and resilience to environmental paradigms [5, 6]. Different types of grasslands (natural, man-made, developed, seminatural, tropical, temperate, etc.) tend to produce different quantities and qualities of ecosystem services (ES), while a variety of factors such as vegetation cover, climate, and geography are taken into account for classifying the grasslands as depicted in **Figure 1**.

Globally, the pertinence of grasslands becomes even more important as over one-quarter of the earth's land surface is covered with grassland ecosystems [1, 2]. There exist vast grassland systems in the planes of North America, sub-Saharan Africa, South America, Australia, and Asia. These are the chief source of dairy products and meat, along with accounting for about one-third of the total carbon of all terrestrial ecosystems. These provide numerous ES such as night cooling, soil erosion control, and flood mitigation [7, 8]. As per agricultural perspectives, there are three major types of grasslands including natural, seminatural, and improved grasslands [9, 10]. Natural grasslands basically form the grassland biomes and these were created by practices related to climate, fire, and wildlife grazing [11], but are also used by livestock. In comparison to natural, seminatural grasslands are formed through human management, and for their maintenance, it needs livestock grazing or hay-cutting [12]. Whereas, improved grasslands are pastures that are formed by plowing and sowing agricultural varieties or non-native grasses having high production potential. Artificial fertilizers and intensive management are required for maintenance [13, 14]. The former two grassland types need conservation attention because of their biodiversity significance, reduction in area, and the fact that their full capacity to deliver multiple types of ES. **Figure 2** presents different ecosystems services offered by the grasslands to improve ecosystem functioning and diversified utilities for humans.

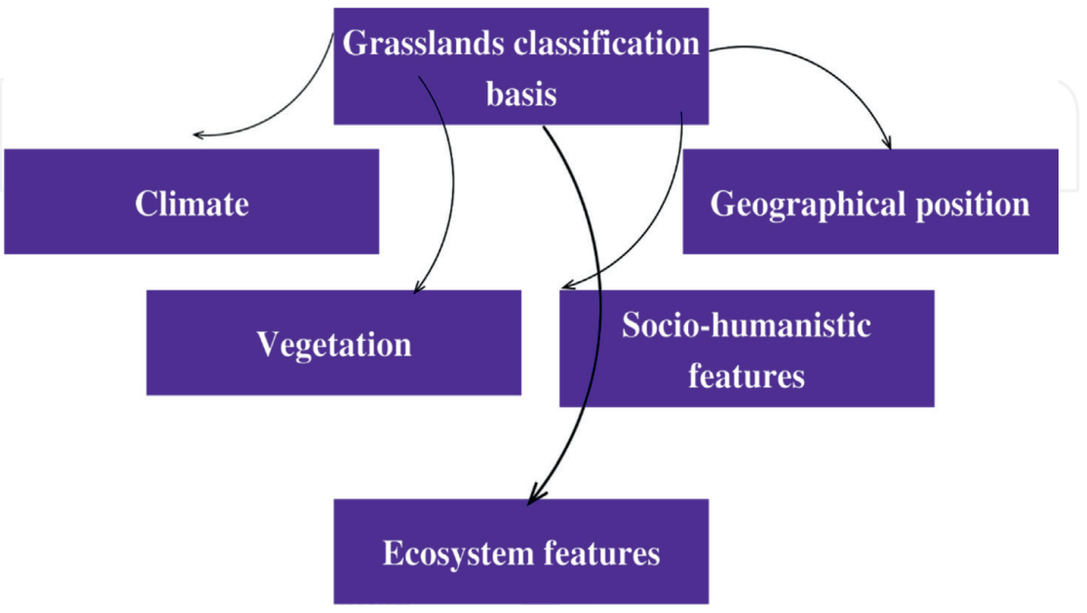

Figure 1.
Different factors for classifying the grasslands such as climate, geography, and socio-humanistic.

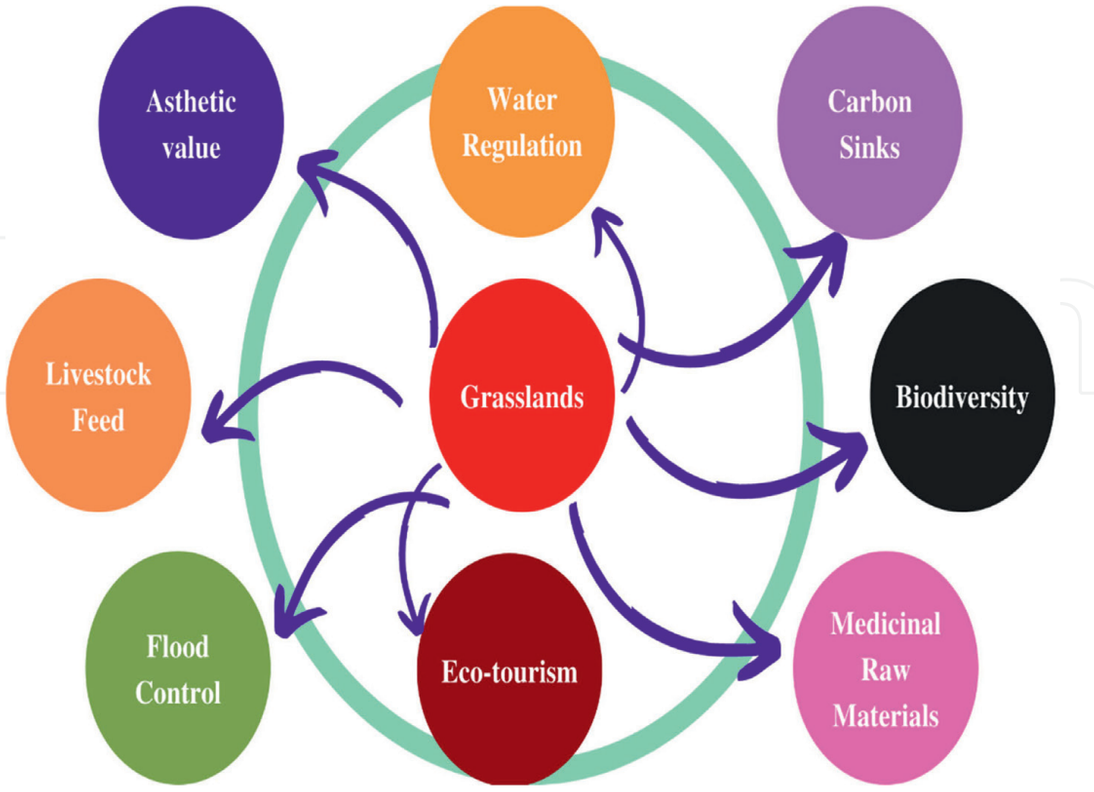

Figure 2.
Different ecosystem services offered by the grasslands to improve the ecosystem functioning and other diversified utilities for humans.

2. Esthetic value of grasslands

One of the primary reasons grasslands hold such vibrant appeal is their inherent esthetic beauty. The visual appeal of grassland landscapes lies in their simplicity and vastness. The open expanse of grasses swaying gently in the wind, the vibrant colors of wildflowers scattered across the fields, and the panoramic views stretching to the horizon create a sense of tranquility and awe. The changing colors of greenery, diversity of wildlife in natural or developed grasslands, and chirping of different species of birds create amazing scenes and enhance the esthetic value of grasslands. Likewise, the esthetic perspective of grasslands becomes undeniable owing to unique beauty of this type of ecosystems that appeals to tourist's senses. Additionally, the visual attraction of grasslands lies in their open spaces and attention-grabbing colors of different types of vegetation. Moreover, the tourists are attracted to the calmness of environment in grasslands whereby grasses movement with parcel of wind creates a unique landscape.

Grasslands also possess unique features and natural attractions that contribute to and enhance their unmatched ornamental value. These include striking geological formations, such as limestone outcrops or rocky ridges, which add texture and character to the landscape. The presence of rivers, wetlands, and lakes within grassland ecosystems adds further diversity and visual interest. These features provide opportunities for eco-tourists to engage in activities like bird watching, hiking, or wildlife spotting, enhancing the overall experience of the grassland environment. Esthetic experience reflects the intimate relation of people with their ecological system [15]. This experience fluctuates as per levels of environmental organization and level of

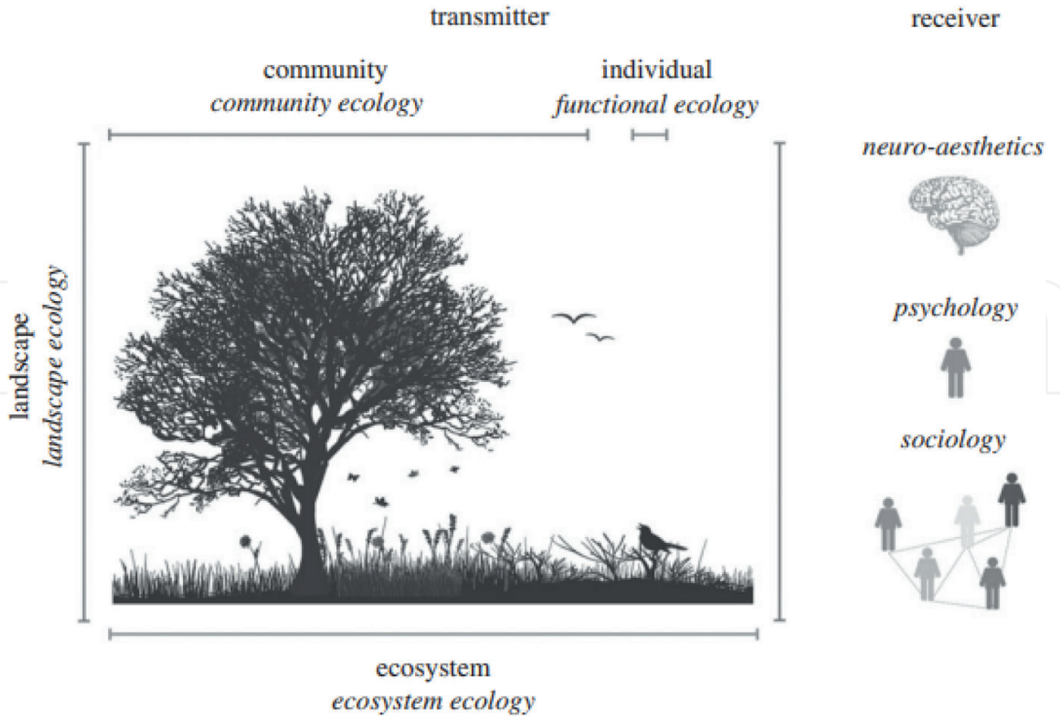

Figure 3.
The levels of esthetic perception in the perspectives of ecosystem ecology.

human perception (**Figure 3**). Esthetic value strongly influences people's inspiration for biodiversity conservation at the landscape as well as species levels [15–17]. Esthetic perception of humans varies according to their level of organization in ecosystem and scale at which humans integrate this information. Functional ecology, community and ecosystem ecology, and landscape ecology are important to study different organization levels of transmitter. Neuroaesthetics and psychology help to study the cognitive processes correlating visual information to emotion from the receiver point of view. Influence of landscape perception on human behavior or mental health can be studied through social science and psychology. The relationship between culture and nature can be studied via fields of philosophy, art, and humanities (e.g., symbolic values and sense of place) [18, 19].

3. Threats to grasslands ecosystem

From past century, grassland ecosystems are facing declining around the world and this decline is still continuing. Both natural disturbances (biotic and abiotic stresses) and anthropogenic influences are the causes for this grassland degeneration [20, 21]. Agricultural activity can be considered as the one of major threat to these systems as occurring on 7.1 million km^2 of the earth's total grassland biome. Reduction in species diversity is also consequence of loss of grassland habitats because of habitat fragmentation, over exploitation by local grazers, amplified nitrogen deposition from the atmosphere, and alterations in fire frequency. Impacts of human activities not only resulted in biodiversity loss at local but also at global level [22, 23]. **Figure 4** presents pronounced threats confronting to the ecosystems of the grasslands.

The survival of remaining biodiversity will only be possible if humans willing to allocate their services and funds for its conservation. Hence, it can be said

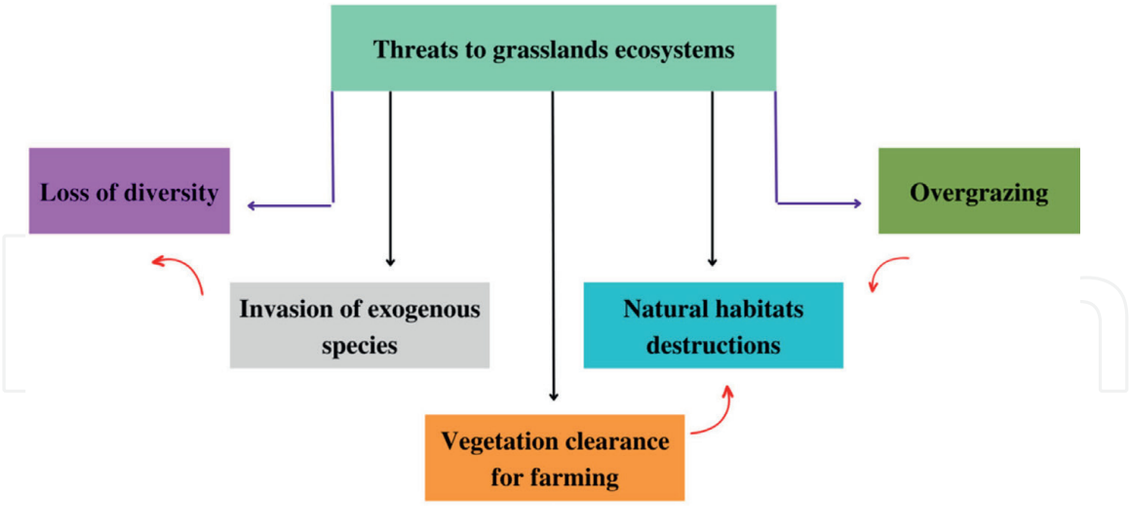

Figure 4.
Pronounced threats confronting to the ecosystems of the grasslands.

that biodiversity conservation critically depends on the basic human concerns for ecological, economic, esthetic, cultural, ethical, and spiritual. These above-stated values motivate communities to support conservation. Nevertheless, human biodiversity preferences are poorly understood by conservationists. Interpretations about public preferences might allow even better prediction of the acceptance of biodiversity management actions, and facilitate the development of appropriate ways of collaborating these, hence, increasing the probability of biodiversity management success [3, 24].

These above-stated ecological issues with the emerging trends of tourism reinforced the development of ecotourism in natural territories. The development of ecotourism activities will inevitably impart positive impacts on the living environment of wild flora and fauna in protected areas. Ecotourism holds the potential to be developed as a promising strategy to channelize tourism-based revenues for promoting environmental conservation and contributing to poverty alleviation. However, vulnerable social-ecological conditions may limit the effects of ecotourism in dry rangelands around the world. However, detailed and target-oriented research must be conducted to promote ecotourism construction by maintaining a balance between conservation and livelihood of local communities [25]. To ensure the conservation and development of grasslands ecosystem having robust ecological diversity, over-seeding of ornamental grasses in natural grasslands might be developed as a critical strategy to promote ecotourism. Supplementation of ornamental grasses with lawn plantation has valuable impact in terms of esthetic, recreational, and health-hygiene.

4. What is ecotourism?

In terms of defining ecotourism, it must be stated that it continues to remain a debatable topic so far among researchers and policy makers. The International Union for Conservation of Nature elaborates ecotourism as an environmentally responsible traveling to an undisturbed natural area with an aim to study, enjoy, and/or appreciate nature which leads to the promotion of conservation of that

natural area along with having meager negative visitor's impact, and offers active venues of socioeconomic involvement for the local community. Another definition of ecotourism entails that it is a business that organizes holidays to different places of natural beauty in such a manner that assists local people economically without damaging the environment. Likewise, Global Ecotourism Network defines ecotourism as the responsible travel to natural areas in such a way that conserves the environment, sustains the local people socially and economically along with creating the knowledge and understanding by educating all stakeholders. Another definition of ecotourism encompasses it as an activity for experiencing and learning about natural areas, their landscape (flora, fauna, and their habitats) and cultural artifacts from the surrounding locality. It further illustrates that a symbiotic relationship between the tourist activities and environment is developed when ecotourism theories are translated into appropriate policy initiatives, carefully articulated planning, and tactful practicum. Ecotourism has been regarded as a specific form of nature-based tourism or a nature-based traveling in the field of tourism. The most pronounced characteristic of ecotourism is that it is nature-based tour or travel for recreation without damaging the environment. Another definition of ecotourism regards it as a form of tourism that is inspired primarily by the history of a natural area and its indigenous cultural and traditional values. The ecotourists usually visit relatively undeveloped regions in the spirit of participation, appreciation, and sharing knowledge and cultural exchange with natives of the area. The ecotourists practice a nonconsumptive use of natural resources and indigenous wildlife which contributes to the site's conservation and economic upliftment of the local communities [26–28].

Theoretically, ecotourism has emerged as one of the most sustainable, economically viable, pro-environment, and promising solutions to attain the goals of zero hunger, poverty alleviation, conservation, and local development. The underlying factor is ecotourism can effectively channelize revenues generated from tourism towards the support services aimed at conserving the environment. In addition, it holds potential to serve as an alternative income source for local people and resultantly they are enabled to reduce their dependency exploitation grassland's ecosystems and local wildlife including highly endangered species that are at the brink of complete extinction. Moreover, it assists to transmit traditional ecological knowledge in a systematic way along with improving public awareness regarding environmental crises, especially in far-flung and marginal regions of the globe. Therefore, ecotourism especially community-based ecotourism needs to be developed as a critical path for attaining the UN Sustainable Development Goals [29–35].

Most prominently, community-based grasslands ecotourism can effectively help to achieve SDG-1 (No poverty), SDG-8 (decent work and economic growth), SDG-14 (Life below water), and SDG-15 (Life on land). However, this potential of grasslands ecotourism has still not been realized even partially owing to a variety of hurdles and challenges. The most pronounced limiting factors include the shortages of requisite financial resources, trained human capital, and social capital having low level of awareness pertaining to the potential of grasslands ecotourism. These limiting factors are further worsened by the imperfection of tourism market, especially the conspicuous consumption and green washing business. Another vital aspect as in many cases, grassland ecotourism fails to aid community development and grasslands conservation, which has raised serious questions on the idealistic claims made by

many sociologists, economists, researchers, and scholars regarding the potential of grassland ecotourism [36–39].

Interestingly, policy makers are confronted to a bigger challenge pertaining to the development of ecotourism in dry land's grasslands, which occupy over 28% of the globe's land area and support around 2 billion people in direct or indirect way. These grasslands effective management, conservation, and development have become critical in order to achieve global sustainability. **Figure 5** presents different vital elements of an effective ecotourism policy. Grasslands and community-based ecotourism have successfully played a strategically vital role in the local economies of many developed countries of North America, Australia, and Europe by achieving a sustainable balance of trade-offs between grasslands conservation and development and means of livelihoods. However, it deserves mentioning that in developing countries of South Asia, especially the Indo-Pak subcontinent, most of the herders have meager access to the markets, public services, technical knowledge, infrastructure, etc., which has prevented the development of grassland ecotourism [10, 40]. Likewise, a wide range of grasslands ecotourism-associated undesirable outcomes have emerged in China, including fraud, exorbitant charges, severe damage by off-road vehicles, and more pronouncedly, eruption of conflicts between local herders and tourists. These undesirable results indicate serious knowledge gaps in applying ecotourism theories without giving due consideration to local economic needs and cultural values.

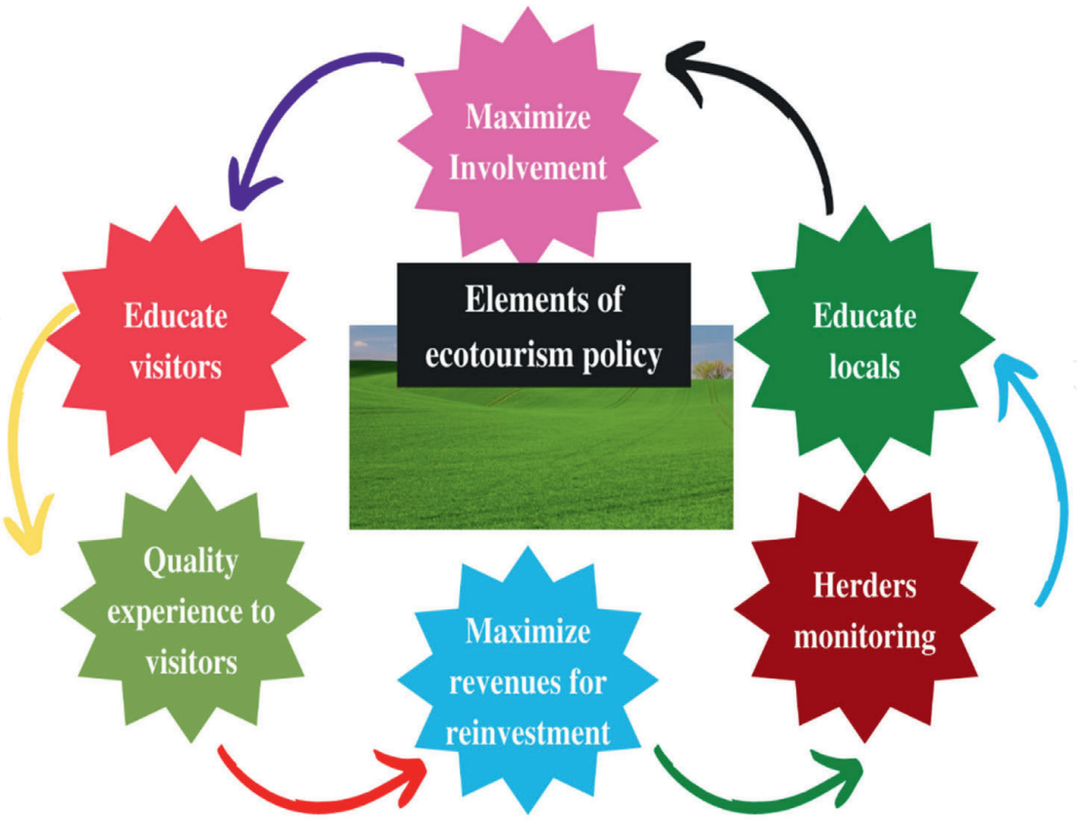

Figure 5.
Elements of an effective ecotourism policy covering aspects related to local community, grassland conservation, and tourists' perspectives.

5. Case studies

5.1 Ecotourism in Ergun grassland

Socioecological effects of ecotourism were surveyed in one of China's most-admired ecotourism regions, that is, Ergun grassland. In comparison to livestock feeding, ecotourism at local helped to attain multiple sustainable goals, like source of income for natives, development of community cooperation, and awareness about conservation of local natural resources. Nevertheless, this affects the diversity of forb species and succeeding reduction in ES. Hence, it is considered that ecotourism in the particular region, still requires improvement and only extensive research which offers economically and biologically viable solutions to local challenges can promote ecotourism in natural, seminatural, or improved grasslands [41].

5.2 Kalahari's landscape

Botswana has various kinds of ecosystems which are enriched with diversified wild species. Kalahari is one the important semidesert of the country that covers the 84% area of whole country. The landscape of Kalahari is dominant with grasslands, scattered trees, and xerophytic vegetation. The Okavango Delta, the Savuti, and the Chobe are at the northeastern sides of Kalahari. These are much wetter areas and rich with diverse wildlife species which are supported by grassland ecosystem. Botswana is unique in that most of its biodiversity is conserved, with a higher percentage of its total landmass conserved than any other country. This conservation level is chiefly achieved through ecotourism. Government policy, high-income, and low-volume tourism support ecosystem conservation in Botswana [42–44].

6. Advantages of grasslands development for ecotourism

Globally, intensively managed grasslands have long been recognized for being the site of conservation for plant and animal biodiversity along with their huge potential for social and cultural utilizations. For the time being, natural and seminatural grassland's capacity to deliver a variety of ES as a part of modern and commercially oriented agricultural systems has surprisingly been understudied compared to other natural resources. Theoretically, it may be perceived that in case of income generation from ecotourism in grasslands, locals might be pursued to exploit lesser biomass from the grasslands. In this way, the conserved biomass may be allocated to support the regulating and other cultural services providers. Thus, development of grasslands for ecotourism holds potential to serve as an alternative and sustainable income source for locals. In addition, it can suppress the chances of conflicts eruption between conservation efforts and livelihood. However, it must be kept in mind that grasslands ecotourism can be promoted at much faster pace by following the community and culturally based principles and traditions. The underlying reason is community-based ecotourism tends to fairly share the revenues with local people, which in turn might assists in developing local institutions for sustainable management of grasslands and wildlife in accordance with devised policies and practices. **Figure 6** illustrates numerous pronounced advantages that can be extracted by promoting grasslands as an avenue of ecotourism. To sum up, grasslands ecotourism must be considered as for, by, and with local community, which in long run, can assist to achieve the sustainable

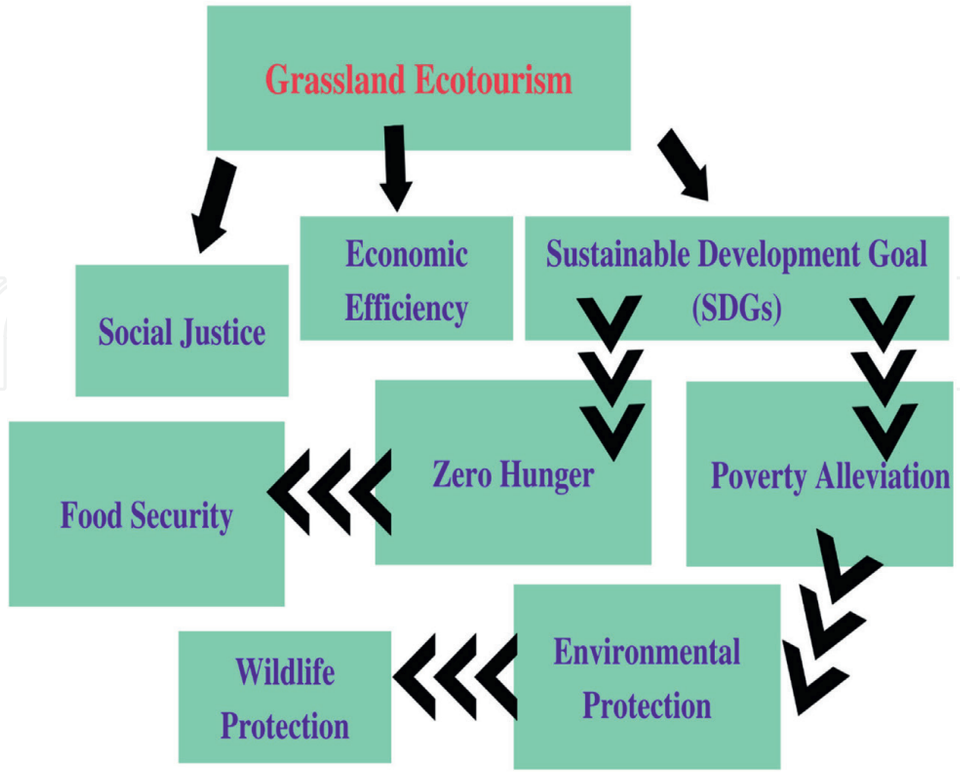

Figure 6.
A variety of advantages that can be achieved by promoting grasslands ecotourism.

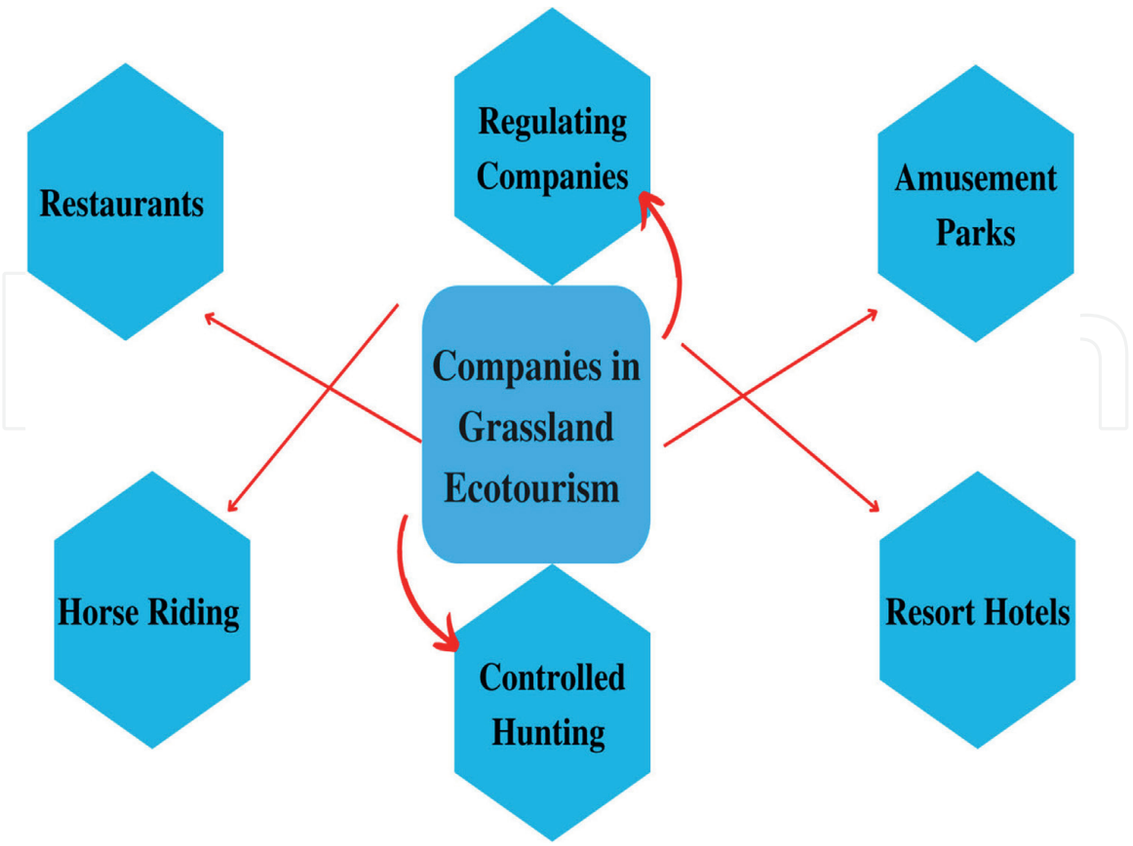

Figure 7.
Different enterprises that may be involved to promote grasslands-based ecotourism and for generating revenues.

development goals of zero hunger, poverty alleviation, food security, and environment protection through community engagement, economic efficiency, social justice, and environment conservation [45]. **Figure** 7 summarizes different enterprises that can be involved in producing quality services to tourists for developing grassland ecotourism in the greater benefit of native communities, tourists, grassland resources, and the environment.

7. Future challenges and perspectives

Despite huge potential of grasslands to serve as new centers of ecotourism, this task cannot be without multiple challenges and hurdles. The development of grasslands for ecotourism loses its charms keeping in view the dryness of regions which entails only dry rangelands. Higher temperatures coupled with lesser precipitation as characterized by dry grasslands. These suboptimal climatic conditions seriously compromise the concept of developing grasslands as an alternative income source for local communities and local governments. Besides suboptimal agroclimatic conditions, another pronounced challenge posed to the development of grasslands for ecotourism is the herder's low socioeconomic status. The poor economic conditions of local herders serve as one of the biggest challenges and distort human acts of goodwill. Thus, climate change, environmental issues, and poor economic condition of local herders have significantly counteracted the benefits associated with ecotourism especially related to biomass conservation. As experienced in the dry grasslands of China, rural community explicitly declined to abide by the set of regulation and policies for grasslands development. Likewise, lack of reforms in the grassland's tenure system has caused the division of public grasslands into fragmented, herders-owned plots

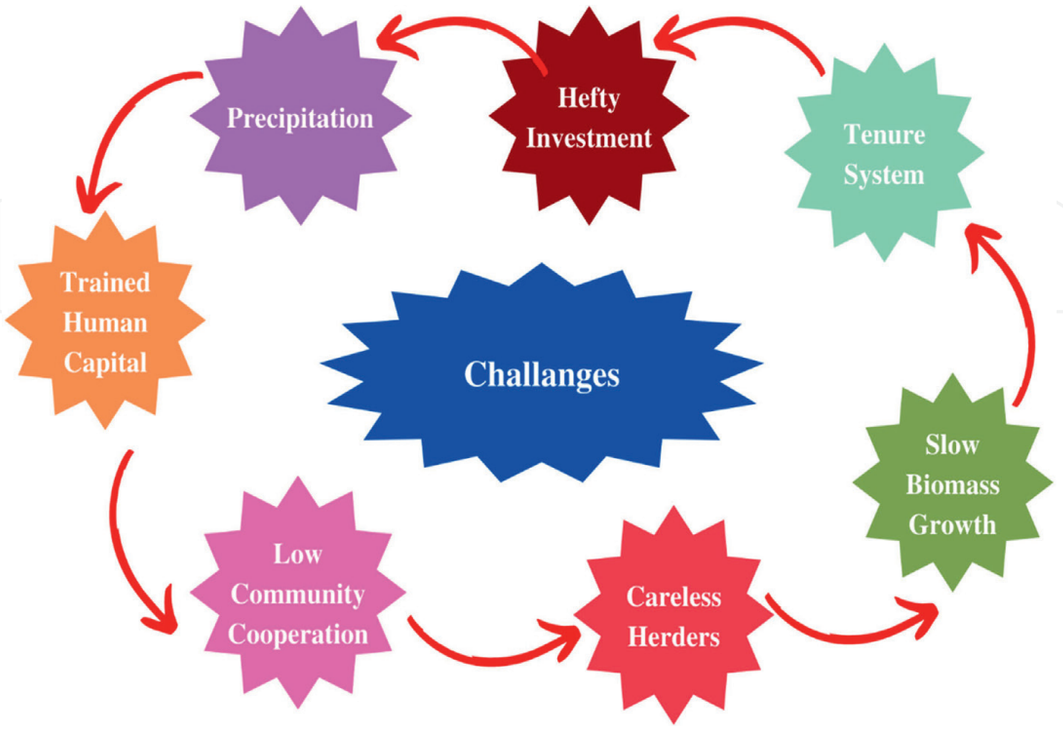

Figure 8.
Different pronounced challenges confronted to the development of grasslands for ecotourism.

which get subject to severe overuse without any management plan. The net result is those herders are never interested and inclined to community cooperation while facing numerous external challenges alone [45–47]. **Figure 8** shows numerous but the most serious challenges confronted to the development of grasslands for ecotourism.

Moreover, other pronounced challenge in the way of developing grasslands for ecotourism is consistent drainage of human capital from rural communities of regions in the vicinity of grasslands. Over time, this situation has led to communities having higher number of aging people having little desire and motivation to strive for developing grasslands. Interestingly, such demographics also result in weak public services and deteriorated infrastructure [48]. Thus, living in socioeconomically declining community, local herders are not able to realize the potential advantages of community-based ecotourism. Hence, without addressing these socioeconomic hurdles, it may be overoptimistic theory to endorse positive social-ecological outcomes of ecotourism.

Future perspective of developing grasslands for ecotourism depends on extensive research and policy initiatives pertaining to ES and food security as grasslands can be utilized for attaining green forage and preserved fodder. This can lead to boost the meat production alongside many other ES. By integrating grasslands into farming systems and land-use decisions locally and regionally, their potential to contribute to functional landscapes and to food security and sustainable livelihoods can be greatly enhanced through research and facilitating different stakeholders. Semi-natural grassland is a product of human management and requires planned livestock grazing or hay cutting in order to appropriately maintain them, and might be encroached by invasive shrubs and trees if not properly cared of which is bound to decrease grasslands value for ecotourism. Last but not least, future research needs to focus on improved grasslands which are the pastures developed from plowing and sowing of non-native grasses with high production potential. Agronomists and horticulturists must redirect their research for formulating optimized practices for ensuring robust growth of native vegetation in grasslands through artificial fertilization and thereafter suggesting biologically viable management package for improved grasslands in order to obtain diversified ES.

8. Conclusions

Grasslands (both natural and developed) are one of the most essential elements of sustainable ecosystem for having multifunctional roles in the perspectives of economics, ecology, sociology, and cultural ethics. Grasslands need to be appropriately managed in order to sustain the grass-based ecosystems and surrounding communities that rely on them for their livelihood. It has been inferred that grasslands development can assist in raising of milk and draught animals paves the way to provide farmers with sufficient income and that too with relatively meager capital investment. In contrast, regions where grasslands are not productive enough to provide sufficient food products on competitive basis owing to adverse environmental conditions, the only way is to create a grassland tourism activity. The development of grasslands for ecotourism offers valuable recreation and generates tourism-associated business activities. The development of grasslands for ecotourism must be done by keeping in view that one of the main purposes of tourists is to spend a holiday and enjoy from a range of site seeing, services, and amenities in a natural environment free from pollution and hustle bustle of cities life. Ecotourism also holds potential to attract

typical tourist who are looking for organic products (wine, fruits, olive oil, honey, cheese, meat, milk, etc.). Grasslands must be managed by using sustainable practices that are bound to ensure high diversity of species in multifaceted habitats that attract many species of birds, vertebrates, and invertebrates. The local communities can earn higher profits by selling quality products as consumers perceive that food products coming from organic grasslands are of higher quality. Moreover, the development of grasslands for promoting ecotourism can put a halt to migration of local communities to nearby cities. However, there are numerous challenges in the way of grassland ecotourism such as hefty investment requirement, need of trained human capital, and establishment of a paradigm between grasslands conservation and development activities for tourism. Furthermore, side effects of grasslands ecotourism can only be effectively addressed by systematic evaluation and adopting the appropriate measures. Finally, there are emerging concerns that presence of tourists in large number deteriorate ecosystem functioning of the grasslands. However, a variety of benefits including sociocultural values promotion, exchange of knowledge and ethics, monetary benefits, and conservation of environment advocate development of grasslands for ecotourism.

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