

## Research Article

# Grazing Permit Issuance Process and Its Challenges in Iran's Rangelands

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### Abstract

Livestock grazing represents the most economically significant use of rangeland ecosystems worldwide. In Iran, decades of reliance on the "Grazing Permit" system have exposed critical inefficiencies in its implementation and widespread non-compliance, leading to overgrazing beyond the carrying capacity and unauthorized grazing practices that threaten rangeland sustainability. This study analyzed the permit issuance process across six ecological regions, employing a mixed-methods approach using 96 beneficiaries and 31 specialists. Quantitative analysis using ANOVA revealed significant regional disparities in permit issuance. On average, permits took 73 days to be processed with a range of 45 to 120 days across 15 steps. Thematic analysis identified 40 major challenges, which were categorized into systemic, legal, supervisory, economic, and social domains. Key issues included non-integrated systems, time-consuming violation reviews, inheritance complications, weak monitoring, outdated data, low expert motivation, and insufficient funding. The study recommends adopting community-based governance, developing integrated electronic systems, modernizing regulations, and strengthening monitoring mechanisms. These evidence-based solutions address the identified challenges while ensuring compliance with permit regulations through sustainable rangeland management practices, which are essential for conserving Iran's diverse ecological landscapes. The strategic implementation of these reforms is expected to enhance administrative efficiency while safeguarding the ecological integrity of these vital natural resources.

**Keywords:** Grazing Permit, Rangeland Management, Sustainable Development, Administrative Challenges, Iran

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## 1. Introduction

Modern political societies rely on well-designed laws and regulations for governance (Vakilian and Markaz Malmiry, 2016). These instruments are not temporary; they are permanent guidelines. Formal regulations are essential tools for governments to protect and manage natural resources (Rhodes et al., 2017). So, creating and enforcing natural resource laws can help manage these areas. This leads to better conservation and sustainability of forests and rangelands (Kaimowitz, 2003). In many areas, livestock grazing is the main economic use of rangelands (Campbell et al., 2006). It's crucial to sustain

these ecosystems to keep their economic benefits (Baumgärtner and Quaas, 2009). Inefficient management, unstable regulations, and weak local participation have worsened resource degradation (Hajarian, 2022). Also, unclear and culturally irrelevant regulations have led to illegal exploitation and more damage (Mwangi and Meinzen-Dick, 2009; Grice and Hodgkinson, 2002). In countries like India, weak permit oversight has harmed rangelands and reduced vegetation cover (Singh et al., 2020). In developing nations, poverty and limited income options force herders to increase herd sizes, which speeds up land degradation. In Mongolia, livestock growth for economic reasons has lowered grazing capacity and

caused significant damage (Fernandez-Giménez et al., 2015).

Involving communities in decision-making boosts accountability and helps cut down illegal grazing and leasing (Fernandez-Giménez, 2002). Brazil and Argentina have updated grazing permit laws to clarify processes, which improves rangeland management (Baldi and Texeira, 2016). After Iran nationalized its rangelands in 1962, it established a “Grazing Permit” system for livestock. Rangeland surveys show that all users must have a permit for any rangeland use, especially foraging. The permit specifies the type and number of livestock allowed, grazing seasons, durations, and historical usage records. This information, along with herder IDs and details about grazing units (Samāns), is stored Forest, Rangeland and Watershed Management Organisation (FRWO) database. This setup provides real-time data on grazing livestock, helps set stocking rates, supports grazing and feeding system design, and allows for timely control of livestock entry and exit (Motamedi et al., 2020; Badripoor et al., 2006).

Iran’s rangelands have faced serious challenges in recent decades. These issues threaten the health of these important ecosystems (Mehdavi and Safari, 2023). Different provinces, like Kerman, Mazandaran, and Khorasan, deal with unique management problems (Anabestani and Naderi, 2018; AJOKP, 2001). Key factors driving rangeland degradation include over-exploitation, climate change, droughts, land-use changes, lack of knowledge among users, and poor management (Alizadeh and Mohammadi, 2022).

Due to ongoing changes in the country's natural resource management, several issues have come up. These include:

- A shortage of specialized experts
- Inefficient hardware and software
- Population growth
- Overcapacity in livestock
- Off-season grazing
- Small-scale herders without permits
- Rising demand for meat and dairy
- Marginalization of rangelands in national development
- Livestock exceeding carrying capacity
- Harmful rangeland leasing practices

Over the past decades, the obligations in the permits have often gone unmet. There is no standard way to enforce them. Modernizing the grazing permit process is crucial. It needs to match current rangeland conditions, societal needs, and stakeholder views. This will help ensure ongoing enforcement of permit obligations (Arzani et al., 2000). Sustainable rangeland management needs a grasp of historical trends, laws, and the interaction

between ecological and economic systems (Grice and Hodgkinson, 2002; Khedrigaribvand et al., 2015).

The issuance of grazing permits is vital for conserving and developing rangelands. However, it faces many challenges (Seyed Akhlaghi et al., 2023). Current regulations are incomplete, outdated, and do not match the unique ecological conditions of each area, nor do they align with local grazing management knowledge (Motamedi et al., 2020; Arzani, 2007). Additionally, permits often ignore both short-term and long-term grazing capacities. This creates confusion for local users and authorities, making it difficult to enforce existing laws.

A modern approach in this field is using online grazing permits. These permits help rangeland users and pastoralists using digital platforms (Farazmand et al., 2019). The primary goal of this system is to streamline permit applications through web-based forms and procedures. This digital approach benefits the environment by reducing off-season grazing impacts on plant and seedling growth. The rapid, contactless process also facilitates collaboration and fosters trust between pastoralists and FRWO staff, improving social interactions and reducing the likelihood of conflict. Sustainable rangeland management needs a clear identification of challenges. It also requires practical solutions that fit local social conditions (Rist et al., 2007). Previous studies showed that weak laws, poor planning, lack of management skills, and little community participation are major obstacles to effective rangeland management (Norberg and Cumming, 2008; Prell et al., 2009).

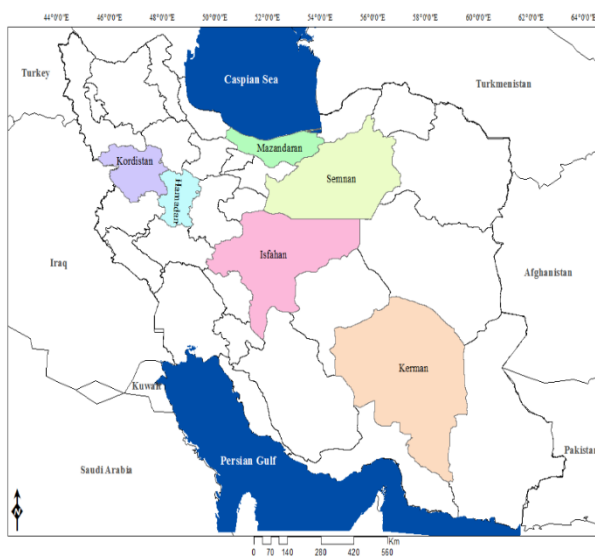
Standardizing grazing permit processes is key to managing grazing. It helps control livestock entry and exit, balance livestock-to-rangeland ratios, and enables real-time data-driven stocking decisions. This also aids in designing grazing and feeding systems during droughts and provides necessary support services. This study analyzes the challenges of issuing and renewing livestock grazing permits in the rangelands of six ecological regions of Iran. The aim is to identify obstacles in this process and propose effective, practical solutions.

## 2. Materials and methods

The study aimed to examine the livestock grazing permit process and identify its associated barriers. It focused on six ecological regions of Iran: Kerman, Isfahan, Hamedan, Kurdistan, Mazandaran, and Semnan (Fig 1). Each region exhibits distinct rangeland habitats, historical land-use patterns, and beneficiary densities. Knowledge of grazing management also varies across regions, and annual differences in climate, drought occurrence, and forage production further influence rangeland dynamics.

**Table 1.** Sample Size of the Research Population

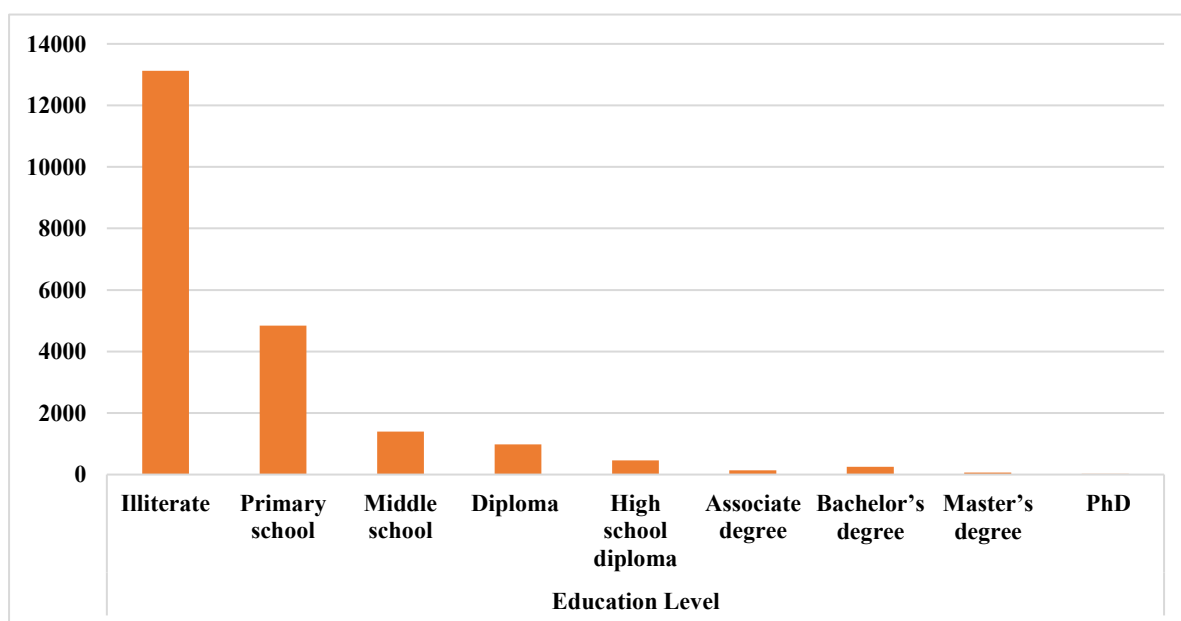
Ecological zone	Experts	Beneficiaries
Kerman	5	27
Semnan	6	15
Kurdistan	3	12
Mazandaran	6	15
Isfahan	6	15
Hamedan	5	12
<b>Total</b>	<b>31</b>	<b>96</b>



**Figure 1.** Geographical location of the studied Ecological zone

**Table 2.** Status of Registered Applications in the Single Window System for Land (2020)

Application Status	Frequency	Percentage
Completed	16,134	73.82
In Progress	5,053	23.12
Pending	483	2.21
Suspended	157	0.72
Blocked	31	0.14
<b>Total</b>	<b>21,857</b>	<b>100</b>



**Figure 2.** Number of applicants for livestock grazing permits in the Single Government Window system by education level (2020)

**Table 3.** The Process of Issuing and Renewing Grazing Permits

Permit Type	Steps and Sequence of Permit Acquisition	Time (Days)
Grazing Permit Issuance	1- A written request from the local Natural Resources Office to the Provincial Natural Resources and Watershed Management Office to announce the rangeland cadastral survey.	8
	2- Review of declared parcels by the Rangeland Office	3
	3- Announcement issuance by the provincial office	2
	4- Form a district cadastral survey committee. It will include one representative from the provincial office.	2
	5- Visit the rangeland to identify eligible herders. Complete six relevant forms and collect documents of herders	28
	6- Preparation of rangeland ID	-
	7- formation of the assessment file for the parcel and submission to Rangeland Office	-
	8- Review of requests and forms from visited areas, along with file study, document completion, and decision making	-
	9- If the file has issues, referral to the district for resolution.	30
	10- If there are no issues, submission to management	-
	11- Approval and signing of the file by the General Director and referral to Rangeland Office	-
	12- Submission of assessment file (including signed grazing permits and other documents) to the county	-
	13- Delivery of grazing permits to the herder	-
	14- Signing the back of grazing permits (archive copies) and submission to the district office	-
	15- Submission of a complete rangeland assessment file (signed archive copies by herders) to the Rangeland Office	-
	Total days spent in current status (from start to end of process)	73
	Expected days in optimal status (based on expert opinion)	52
Permit Renewal Process	1-Applicants register in the Ministry of Agriculture Jihad's Single Window System. They enter personal and rangeland information.	2
	2-The district Natural Resources and Watershed Department receives and verifies the applicants' information.	2
	3-A technical review checks the rangeland user identity and permit authenticity.	2
	4=After approval, the applicant is notified to pay fees based on livestock numbers.	2
	5-A one-year rangeland permit renewal is issued, signed by the district director of Natural Resources and Watershed Management.	1
	Total days required in the current process (from start to end)	9
	Expected days in optimal conditions (based on expert opinion)	4

**Table 4.** Results of One-Way ANOVA for grazing permit processing times across ecological regions

Source of Variation	DF	SS	MS	F-value
Between Groups	5	45,680.4	9,136.1	48.72**
Within Groups	128	12,345.2	187.5	
Total	133	58,025.6		

\*\* , Significant at 1% probability level

**Table 5.** Results of Multiple Comparisons for Livestock Grazing Permit Processing Time Using the Tukey Test

Ecological zone	Mean Time (Days)	STD (Days)
Kerman	120.3 a	17.5
Hamedan	57.1 b	4.5
Kurdistan	53.0 b/c	4.3
Mazandaran	54.3 b/c	3.1
Semnan	50.4 c	2.9
Isfahan	39.4 c	2.5

Means followed by the same letter are not significantly different (P=0.01) according to the Tukey method

**Table 6.** Clustering of regions based on the time of issuance of grazing permits (Tukey test)

Cluster	Ecological zone	Mean Time (Days)	Key Characteristics
a	Kerman	120.3	High Processing Time
b	Isfahan, Kurdistan, Hamedan	57.1–60.2	Moderate Processing Time
c	Semnan, Mazandaran	45.3–50.4	Low Processing Time

We used a mixed-methods approach, combining interviews and questionnaires. This helped us explore the permit process and identify barriers. The study included all grazing permit applications registered in the "Iran Natural Resources Portal" in 2020. For the qualitative part, the purposive theoretical sampling was used. The sample size was based on theoretical saturation with a snowball method. We conducted 127 semi-structured interviews: 96 with customary beneficiaries and 31 with experts (Table 1). It was kept going until it reached saturation. The interview questions focused on three main themes: procedural challenges, legal barriers, and technical or structural issues. For the quantitative part, we analyzed permit processing times to back up our qualitative findings. We used analysis of variance (ANOVA) and Tukey's tests to find statistical differences in efficiency across ecological regions. We confirmed normality and homogeneity of variance before running ANOVA. All statistical analyses were done using SPSS software (Version 26) at a significance level of  $\alpha=0.05$ . Table 1 shows the study population size and its geographical distribution.

### 3. Result

#### 3.1. Applicants' characteristics for livestock grazing permits

Reports from the Natural Resources and Watershed Management Organization showed that 320,000 livestock grazing permits were issued by the end of 2020. Limited access and low literacy rates among rangeland users meant few registered in the government's Land Single Window System (Samāneh Panjereh Vahed). Most applicants needed to visit the local Natural Resources and Watershed Management offices in person for their permits. Data from the Land Single Window System revealed that 21,857 applications were registered in 2020. By September 2020, 16,134 applications were finalized, while 5,053 were still under review (Table 2). Fig 2 shows the literacy status of registered applicants in 2020. Many applicants were illiterate or had low educational levels. This made it hard for them to register online or interact with digital systems.

#### 3.2. Livestock grazing permit issuance process in rangelands

Analysis of the questionnaires from beneficiaries revealed that new permit issuance and renewal have 15 stages. On average, it took about 73 days to finish the process, whereas the permit renewal process has 5 stages and requires 9 days (Table 3). The one-way ANOVA revealed highly significant differences in grazing permit processing times across ecological regions ( $p<0.01$ ) (Table 4). These findings provide strong empirical evidence that geographical location and associated administrative

systems significantly impact permit processing durations. Post-hoc analysis revealed statistically significant differences in livestock grazing permit processing times across ecological zones. Kerman exhibited the most pronounced inefficiencies, with processing times significantly longer than all other regions (120.3 days). This was followed by Hamedan (57.1 days), Mazandaran (54.3 days), and Kurdistan (53.0 days). Semnan (50.4 days) and Isfahan (39.4 days) had the shortest processing times. These results indicate that the time required to process grazing permits varies considerably between provinces, with Kerman showing the greatest inefficiency (Table 5).

#### 3.3. Challenges and obstacles in issuing and renewing livestock grazing permits for rangelands

This research, based on field studies and stakeholder consultations, identifies 40 key challenges in the livestock grazing permit system. These challenges fall into five main categories.

1. Systemic and Technical Problems: Issues include fragmented digital infrastructure, reliance on manual processes, and poor internet access in rural areas.
2. Legal and Policy Challenges: Ambiguous regulations, local ecological mismatches, and complex procedures like annual permit renewals create hurdles.
3. Executive and supervisory problems: Inadequate monitoring, outdated rangeland data, and a lack of trained personnel hamper effective management.
4. Economic/livelihood problems: High permit costs compared to herders' incomes, rising livestock numbers due to poverty, and limited alternative livelihoods add strain.
5. Social/cultural problems: Low technical literacy among herders, gaps in knowledge transfer, and resistance to centralized management also pose challenges.

The components and factors behind these challenges, identified through open coding methods, are detailed in Table 7.

### 4. Discussion

Existing reports indicate that the rangelands of the country are undergoing a regressive trend. This is primarily attributed to excessive livestock numbers on the rangelands and, secondarily, to the lack of proper grazing management (Shokat Fadaei and Sandgol, 1999). Additionally, climate change and droughts are recognized as serious threats to the sustainability of rangeland ecosystems (Godde et al., 2020; Kahsay et al., 2019). Due to the imbalance between livestock and rangeland capacity and the climatic changes affecting these ecosystems, the current condition of rangelands is far from satisfactory compared to the desired state.

**Table 7.** Identified Statements and Components of Obstacles in Issuing By-product Harvest Permits via the Open Coding Method

Row	Data and Components	Concept/Category
1	Lack of an integrated support system. Discretionary issuance systems exist across provinces.	Systemic and procedural problems
2	Most processes are physical, leading to longer processing times.	
3	Many herders and rangeland users struggle with system registration and document uploads due to illiteracy or age.	
4	Notifications to stakeholders about permit issuance or renewal are often inaccurate or delayed.	
5	Once a permit is renewed, information cannot be modified.	
6	Internet access is difficult, requiring long travel for some.	
7	Internet speeds are slow, and systems are congested during peak application times.	
8	The system lacks a history of violations, only showing prior renewal status.	
9	Laws, policies, and regulations are often unclear.	
10	Some laws do not fit local or regional conditions.	
11	Conflicting directives confuse both implementers and users.	
12	The current annual renewal system is time-consuming.	
13	Reviewing violations takes too long.	
14	Dividing permits among heirs after death creates uneconomical units.	
15	Inheritance transfer procedures are complex and slow.	
16	Permit holders lack motivation to register for renewals.	
17	Accumulated debts from previous years come with daily penalties.	
18	When the main permit holder dies, heirs may not know the procedures.	
19	Permits are sometimes issued to non-local individuals.	
20	Illegal permit trading and leasing occur.	
21	Monitoring systems are weak.	
22	There is a shortage of specialized supervisory staff.	Executive and supervisory problems
23	Assessment data is often outdated or inaccurate.	
24	Non-compliant harvesting methods are common.	
25	There are not enough subject specialists for training and extension.	
26	Modern technologies for monitoring or assessing carrying capacity are lacking.	
27	Inspectors are often unmotivated, causing delays in permit delivery.	
28	Enforcement of livestock limits and entry-exit timing is lax.	
29	Provincial budgets are insufficient.	
30	There is a lack of support equipment, like vehicles and IT systems.	
31	The Natural Resources Department has weak interagency authority.	
32	Communities are poor and highly dependent on rangelands.	
33	Increased herd sizes are due to poverty and lack of alternatives.	
34	Royalty fees are too high for most herders to afford.	
35	There is a lack of insurance support.	
36	Obtaining bank loans is difficult.	
37	Many are technically unfamiliar with sustainable rangeland use.	
38	Disputes over customary and legal boundaries occur frequently.	
39	Community resistance is common.	
40	Active community participation is lacking.	Social/cultural problems

Even under low grazing pressure, livestock productivity is not optimal (Wilson et al., 1984). Thus, in management programs, livestock numbers should be reduced, grazing pressure minimized, and grazing timing optimized within economically viable operational units (Arzani, 2007; Mesdaghi, 2015; Holechek et al., 2011). The first step toward achieving sustainable rangeland management is establishing a balance between livestock numbers and

rangeland carrying capacity. A key prerequisite for implementing this balance is the issuance of grazing permits based on both the short- and long-term grazing capacity of rangelands, as well as their readiness for grazing. This process must also account for climatic fluctuations and their effects on forage production and rangeland suitability across different years. This approach can guide rangeland managers in assessing whether

current vegetation use aligns with forage quantity and quality and adheres to permissible utilization limits (Motamedi et al., 2019; Holechek et al., 2020). These highlight the importance of grazing permits, which are issued to eligible individuals based on rangeland capacity, grazing season, duration, and historical use, considering local customs within defined rangeland boundaries. Such permits are essential for grazing management, ensuring the conservation of fundamental resources (water, soil, and vegetation) and, consequently, the ecological integrity of the rangelands (Motamedi et al., 2020; Grice and Hodgkinson, 2002). In this regard, international organizations such as the Food and Agriculture Organization (FAO) and the International Union for Conservation of Nature (IUCN) consistently emphasize the importance of sustainable natural resource management and the necessity of controlled permitting systems (FAO, 2020). Research findings indicate that the current livestock grazing permit issuance process, comprising four stages (application submission, request processing, permit issuance, and monitoring), takes an average of 73 days across six studied ecological regions. This duration is problematic given the noticeable fluctuations in rangeland readiness for grazing and forage production, driven by climate change (rising temperatures and seasonal shifts), droughts, and increased demand for herd migration to less drought-affected areas. The process must be significantly shortened to facilitate drought response planning, timely livestock movement control between summer and winter pastures, and efficient handling of permit requests (Motamedi et al., 2020; Grice and Hodgkinson, 2002; Vallentine, 2001; Kahsay et al., 2019). The issue becomes even more critical when, in addition to meteorological drought, hydrological drought occurs, jeopardizing not only forage availability but also livestock drinking water supplies. In such cases, rangelands may fail to meet even the maintenance needs of grazing livestock, leading to increased demand for transboundary migration. Under these conditions, reduced forage production in agricultural systems drives up the cost of fodder and manual feeding, increasing livestock maintenance and breeding expenses in confined systems. Consequently, demand for grazing in rangelands, particularly summer pastures, rises, resulting in the proliferation of rangeland leasing, unauthorized grazing, and small-scale herding (Mesdaghi, 2015; Baharvandi et al., 2023; Motamedi et al., 2019; Shokat Fadaei and Sandgol, 1999). Therefore, one of the most important strategies for improving rangeland management efficiency is simplifying and expediting grazing permit procedures to address demand, manage grazing, control livestock movement, and plan appropriate stocking rates and supplementary feeding systems during droughts.

Statistical analysis of permit processing times revealed significant disparities among ecological regions. For instance, in Mazandaran's summer rangelands, where drought intensity is typically lower due to favorable environmental conditions and demand for livestock relocation is minimal, the average permit issuance or renewal time is 45.3 days. In contrast, traditional rangeland users in Kerman, where droughts are more severe, leading to higher demand for herd migration, face an average processing time of 120.3 days.

In summary, as climate change and droughts intensify, degrading rangeland forage quality and quantity, reducing drinking water availability, and increasing livestock maintenance costs, the demand for herd relocation, including transboundary migration, rises. Due to the high volume of requests, permit issuance in such ecological regions becomes prolonged (Holechek et al., 2020; Kahsay et al., 2019; Kemal et al., 2022; Motamedi et al., 2020). The research findings identified 40 challenges as obstacles to obtaining grazing permits, which categorized into five groups: systemic and structural, legal, regulatory, economic, and socio-cultural challenges. Addressing these could streamline the permit issuance process and ensure timely approvals.

Overall, the shortcomings of the current grazing permit issuance system, including the lack of integrated national systems and standards, reliance on outdated methods, and misalignment with the socio-economic realities of rural and nomadic communities, need fundamental reforms incorporating "community-based rangeland governance." This necessitates identifying key rangeland governance actors and defining roles, rights, and responsibilities for each type of stakeholder. The operational solution, also, to land-use planning and stabilization, involves redesigning ownership and management rights for rangelands with an approach that maximizes delegation of management and, in some cases, ownership to rangeland users. Simultaneously, support should be provided for the formation of local, regional, and national associations of rangeland users and producers based on the social, economic, and climatic conditions of each region. On the whole, the shortcomings of the current grazing permit issuance system, including the lack of integrated national systems and standards, reliance on outdated methods, and misalignment with the socio-economic realities of rural and nomadic communities, need fundamental reforms incorporating "community-based rangeland governance." This necessitates identifying key rangeland governance actors and defining roles, rights, and responsibilities for each type of stakeholder. The operational solution, also, to land-use planning and stabilization, involves redesigning ownership and management rights for rangelands with an approach that maximizes the

delegation of management and, in some cases, ownership to rangeland users. Simultaneously, support should be provided for the formation of local, regional, and national associations of rangeland users and producers based on the social, economic, and climatic conditions of each region. These associations should be legally recognized and valued, and there should be no fear of involving people in natural resource governance within reasonable and wise frameworks. (Karami and Rahimi, 2018; Sadeghi et al., 2016; Seyed Akhlaghi et al., 2023; Mohebbi et al., 2024). Overall, the proposed framework and roadmap recommend incorporating community-based rangeland governance, developing an integrated national smart system, redesigning permit issuance processes with longer renewal periods, and implementing targeted and participatory training programs for stakeholders. This could potentially include successful hybrid models from regional contexts to enhance system efficiency.

## 5. Conclusion

The study revealed that the current grazing permit issuance process takes an average of 73 days across six ecological regions, a timeframe that is incompatible with the rapidly changing conditions of rangelands affected by climate change and recurrent droughts. Sharp regional disparities—from 45.3 days in Mazandaran to 120.3 days in Kerman—highlight systemic inefficiencies and a misalignment with ecological variability and the needs of rural and pastoralist communities. Increasing climatic pressures, including reduced forage availability, declining water resources, and rising livestock maintenance costs, have heightened the demand for herd relocation, thereby exacerbating unauthorized grazing and small-scale herding practices. Under these conditions, simplifying and accelerating the permit process is essential for managing stocking rates, regulating grazing pressure, and enabling timely herd movements, particularly during drought years. The identification of 40 structural, legal, regulatory, economic, and socio-cultural challenges underscores the need for comprehensive reform. Shortcomings in the current system—including outdated administrative practices, fragmented governance, and the absence of nationally integrated standards—demonstrate that administrative adjustments alone are insufficient. Consequently, a shift toward community-based rangeland governance is necessary. This approach involves clearly defining stakeholder roles and responsibilities, empowering rangeland users through redesigned management rights, and providing legal support for local and regional user associations. Overall, establishing an integrated national smart system, redesigning permit procedures with longer renewal intervals, implementing capacity-based grazing limits, and strengthening

community institutions can collectively enhance permit efficiency, reduce grazing pressure, and support both the ecological sustainability and socio-economic resilience of rangeland-dependent communities.

### Authors Contribution

All the authors have participated sufficiently in the intellectual content, conception and design of this work or the analysis and interpretation of the data (when applicable), as well as the writing of the manuscript.

### Availability of data and materials

The datasets generated (or analyzed) during the current study are available from the corresponding author on reasonable request.

### Conflict of interests

I certify that there is no actual or potential conflict of interest concerning this article.

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