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The Process of Issuing Permits for Harvesting Rangeland By-Products from Natural Habitats in Iran

Seyed Jafar Seyed Akhlaghi*

Research Institute of Forests and Rangelands, Agriculture Research, Education and Extension Organization (AREEO), Tehran, Iran

*Corresponding author: Email: sjsa47@gmail.com

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ABSTRACT

The issuance of permits for harvesting forest and rangeland by-products is one of the most important permits in the natural resources sector, with its own specific process. Investigations indicate that various issues exist in the implementation of this process. This research aims to identify the steps and executive procedures involved in issuing permits for the exploitation of Rangeland By-Products in Iran's natural habitats and the obstacles encountered along the way. The study is qualitative and applied, utilizing the Focus Group method. In this investigation, 64 exploiters and 30 experts from six provinces were purposively selected, and their viewpoints were collected through interviews. The results were analyzed using content analysis techniques. The findings revealed that in Iran, the average time required to obtain a permit under a management plan for harvesting by-products is 480 days, while without a management plan, it takes 72 days. This significant disparity stems from structural and operational challenges, including administrative complexity and heavy bureaucracy, shortage of specialized personnel and monitoring capabilities, legal inconsistencies and lack of transparency, as well as technical issues and the high costs associated with preparing management plans. The time required to obtain a transport permit within a province is 17 days, and for transport outside the province, it is 23 days. In total, 30 problems and obstacles were identified in the process of issuing permits for harvesting Rangeland By-Products from rangelands. The most significant issues include the lack of a unified and integrated platform for implementing processes, illegal harvesting from natural habitats, the absence of accurate data, a shortage of specialized human resources for supervision, the allocation of exploitation rights to non-local individuals, a lack of transparency in laws and regulations, and the limited economic capacity of exploiters to participate.

Keywords: By-products, Harvesting Permit, Transport Permit, Process Management

INTRODUCTION

Today, one of the key factors influencing organizational performance is the facilitation and acceleration of the permit issuance process. However, the presence of lengthy and complex processes in issuing permits can act as a barrier to organizational agility and efficiency. Optimal exploitation of natural resources has always been a serious challenge for governments and countries. The formulation of policies and processes, especially the issuance of permits for exploiting these resources, can serve as a management strategy to balance economic exploitation and the conservation of natural resources. These permits establish essential legal, technical, and scientific frameworks that facilitate the sustainable management of natural resources while safeguarding against habitat destruction [1].

Different countries have adopted various approaches to issuing permits for harvesting from rangelands. For example, in European countries like Germany and France, precise monitoring systems and permits based on environmental assessments are implemented for harvesting medicinal plants and forest and rangeland by-products. In developing countries like India and Nepal, harvesting permits are often issued with the participation of local communities, aiming to protect natural resources and improve rural livelihoods [2]. International organizations such as the FAO and the International Union for Conservation of Nature (IUCN) have consistently emphasized the importance of sustainable natural resource management and the necessity of controlled permit issuance [3]. The World Health Organization (WHO) guidelines on good agricultural and collection practices for medicinal plants stress the need to adhere to sustainable principles in exploiting these resources [4].

At the national level, many countries have developed specific laws and guidelines for the exploitation of medicinal plants in natural resources. In the United States, the Bureau of Land Management (BLM) and the United States Forest Service (USFS) have established precise regulations for issuing permits to harvest medicinal plants from rangelands and forests. These regulations are based on the ecological capacity of regions and conservation needs [5]. China, as one of the largest producers and consumers of medicinal plants globally, has developed comprehensive policies for the sustainable management and exploitation of these resources. In China, the National Forestry and Grassland Administration is responsible for issuing permits for harvesting medicinal plants. These permits are issued based on environmental assessments and the ecological capacity of regions. Additionally, China implements participatory programs with local communities for the conservation of rangelands and medicinal plants. For example, in Yunnan Province, collaborative projects with local farmers for the sustainable cultivation and harvesting of medicinal plants like ginseng and Ganoderma have been executed [6].

In the European Union, countries like Germany, France, and Switzerland have precise policies for the sustainable management and exploitation of medicinal plants and rangelands. In Germany, the Federal Agency for Nature Conservation is responsible for issuing permits for harvesting medicinal plants. These permits are issued based on environmental assessments and the ecological capacity of regions. Additionally, Germany implements participatory programs with local farmers for the sustainable cultivation and harvesting of medicinal plants like chamomile and valerian [7]. In France, the Ministry of Environment is responsible for issuing permits for harvesting

medicinal plants and implements participatory programs with local communities for the conservation of rangelands and medicinal plants [8].

In Iran, various laws and policies exist for the exploitation of medicinal plants in natural resources. The Law on the Conservation and Exploitation of Natural Resources, developed by the Forests, Rangelands, and Watershed Management Organization, has made the exploitation of medicinal plants conditional on obtaining the necessary permits and adhering to conservation principles. According to this law, the harvesting of medicinal plants from rangelands and forests must be done in accordance with the ecological capacity of regions and with the participation of local communities [9]. Numerous studies in Iran have examined the status of medicinal plant exploitation and rangeland by-products. Amiri and Shariff [10], in a study on the rangelands of Fars Province, showed that the overexploitation of medicinal plants like thyme and borage has led to a severe reduction in the density of these species and the destruction of natural habitats. They suggested that implementing policies based on controlled permit issuance and the participation of local communities could help preserve these resources and ensure their sustainable use. Additionally, Rahmani *et al.* [11], in a study on the rangelands of Kurdistan Province, examined the impacts of unsustainable harvesting of medicinal plants like yarrow and wild thyme. The results of this study indicated that insufficient monitoring of the harvesting of these plants has led to a reduction in biodiversity and the degradation of rangelands. They emphasized the need for comprehensive laws for issuing harvesting permits and educating local communities on sustainable harvesting methods.

Investigations indicate that various issues exist in the process of issuing permits for harvesting by-products and medicinal plants from natural habitats in the country. This study systematically examines the permit issuance process for Rangeland By-Products harvesting in natural habitats, with dual focus on (1) mapping the procedural steps and (2) diagnosing systemic obstacles. It specifically addresses critical knowledge gaps through participatory research involving stakeholders (experts, regulators, and harvesters) to generate actionable insights for streamlining bureaucratic workflows.

Key Research Questions (Emphasized):

What are the exact administrative stages and time requirements for obtaining Rangeland By-Products harvesting permits under different regulatory frameworks?

Which structural barriers (bureaucratic, technical, or socioeconomic) most significantly delay permit issuance?

The investigation prioritizes these questions to transform empirical findings into policy recommendations for enhancing operational efficiency in natural resource governance.

MATERIALS AND METHODS

This research is applied and qualitative in nature, utilizing focused interviews and the Focused Group Discussion (FGD) method, relying on semi-structured interviews for data collection. The strengths of this method include its speed and relatively low cost, the ability to gather extensive information on topics with limited available data, and encouraging individuals to express their opinions and participate in group discussions. The statistical population of this study includes all requests registered in the "Single Window of Government Services" system in 2022, and the sampling method, based on the nature of qualitative research, is purposive. Interviews were conducted using the in-depth, semi-structured interview method, with open-ended questions focusing on indicators of the process and steps involved in issuing permits for the exploitation of medicinal plants. Information was recorded and transcribed until theoretical saturation was reached. With this approach, the current study was conducted in several steps as follows:

Step 1: Identification of the existing process for issuing permits for harvesting by-products based on existing documents and guidelines in the Natural Resources and Watershed Management Organization.

Step 2: Formation of provincial focus groups to identify and analyze the challenges in the permit issuance process, using the opinions of a number of applicants who applied for permits in 2022. Data collection in this stage was based on purposive sampling of 10 to 15 applicants from each province. In total, 64 applicants for exploitation permits were interviewed as representatives of the target population.

Step 3: Formation of an expert and specialist focus group with representatives from the organizations responsible for issuing permits for harvesting and transporting medicinal plants in the province to analyze the issues and problems identified in Step 2 (analyzing existing challenges). In this stage, a total of 30 experts from six selected provinces were interviewed.

Step 4: Data analysis using content analysis techniques. In this stage, after conducting the interviews, the qualitative data obtained were coded, categorized, and organized using open coding methods.

In this study, the provinces were selected based on the volume of applicants for permits from the electronic government services portal and the opinions of experts from the Natural Resources and Watershed Management Organization (Table 1).

Table 1 Sample Size of the Statistical Population of the Plan

Exploitation Permit	Experts	Stockholders
Kerman	5	12
Semnan	5	12
Kurdistan	3	12
Mazandaran	5	10
Isfahan	7	12
Hamedan	5	6
Total	30	64

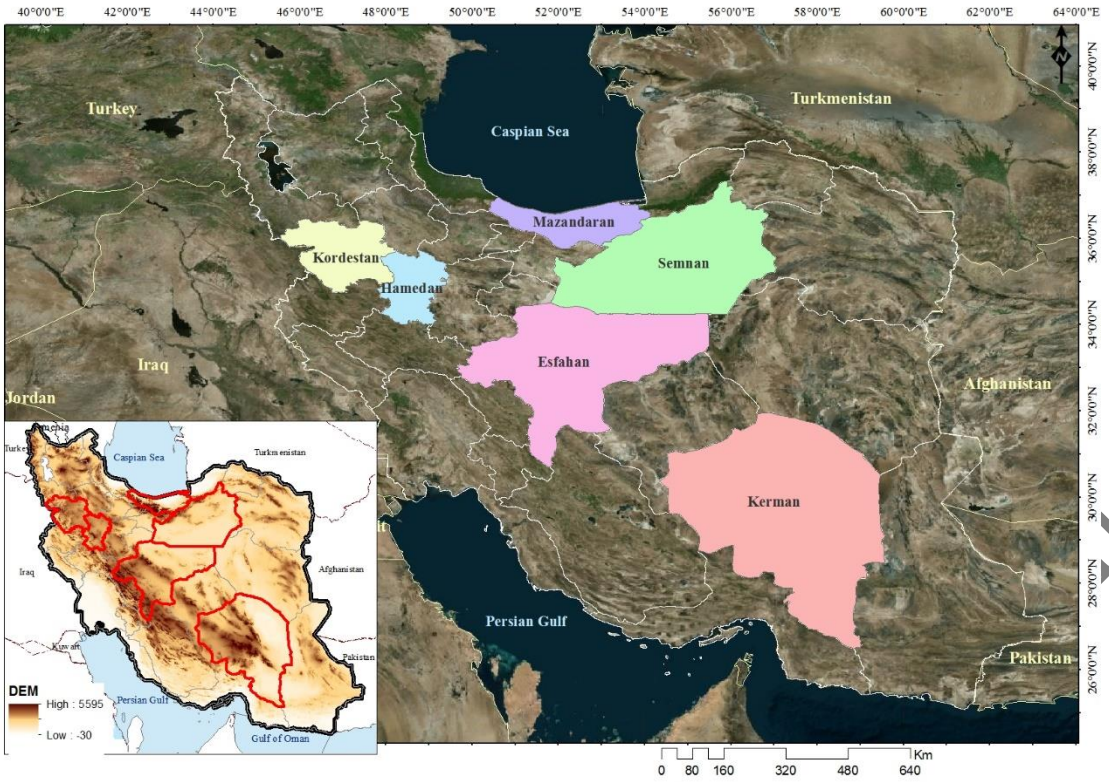

Fig. 1 Geographical location of the studied provinces

RESULTS

Status of Rangeland By-Products Exploitation from Natural Habitats

According to the 2022 report by Iran's Department of Natural Resources and Watershed Management, over 2,000 metric tons of medicinal plants and rangeland byproducts were harvested through approved exploitation plans nationwide. The production hierarchy reveals truffle mushrooms (Terfezia spp.) as the dominant species, accounting for approximately 22% of total underground organ harvests. Gundelia (Gundelia tournefortii), the sole representative of its genus, follows with 16.6% of root-derived production. The ranking continues with caper (Capparis spinosa, Capparaceae) at 14.3% from flower buds and fruits, closely followed by asafoetida (Ferula assa-foetida, Apiaceae), representing 14.6% of gum resin yields. Rhubarb species (Rheum spp., Polygonaceae) contribute 7.5% from leaf and stem harvests, while thyme (Thymus kotschyanus, Lamiaceae) constitutes 9.5% of foliar production. Notably, the endangered Kelussia (Kelussia odoratissima) represents 9.2% of petiole-derived materials. Lower production tiers include Astragalus gums (4.6%), galbanum (Ferula gummosa, 1%), and sage (Salvia officinalis, 0.06%), with ammoniacum gum (Dorema ammoniacum) and mountain leek (Allium haemantoides) together constituting less than 0.1% of total output. This production profile, totaling nearly 2,000 metric tons, underscores the substantial agricultural and economic significance of Iran's native medicinal flora, with the top five species collectively representing over 75% of the documented harvest volume while highlighting critical conservation priorities for threatened species like Kelussia odoratissima. The number of exploitation plans for rangeland and medicinal plant by-products in the target provinces is presented in Table 3.

Table 2 Amount of Rangeland By-Products Harvest from Natural Habitats in 2022

Product Name	Part Used	Production (kg)	Scientific Notes
Truffle mushroom	Subterranean parts	429,781	*Terfezia* spp.
Gundelia tournefortii	Root	325,000	Monotypic genus
Rheum spp.	Leaves & stems	147,000	Polygonaceae
Capparis spinosa	Flower buds & fruit	279,000	Capparaceae
Astragalus spp.	Gum	89,921	Fabaceae
Ferula assa-foetida	Gum resin	285,677	Apiaceae
Thymus kotschyanus	Leaves	186,491	Lamiaceae
Kelussia odoratissima	Petioles	180,000	Endangered
Ferula gummosa	Gum	19,398	Apiaceae
Salvia officinalis	Leaf and flower	1,235	Lamiaceae
Dorema ammoniacum	Gum	558	Apiaceae
Allium haemantoides	Onion	1,600	Amaryllidaceae
Total		1,955,661	

Source: Natural Resources and Watershed Management Organization of Iran, Exploitation Office (2022)

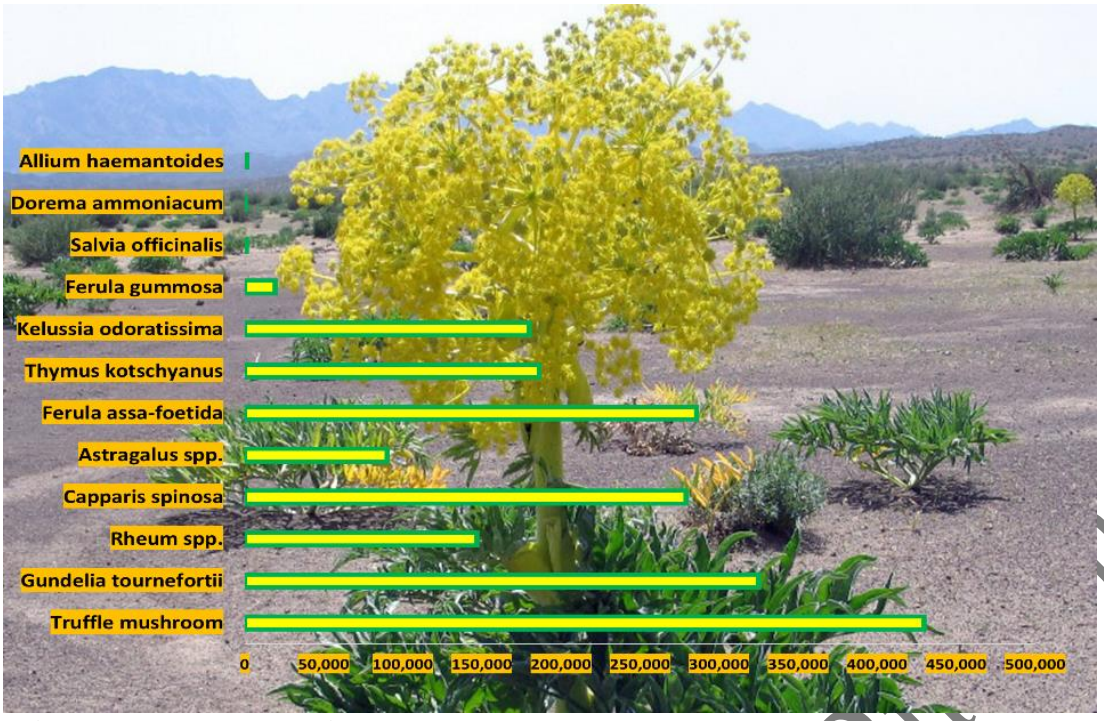

Fig. 2 Amount of Rangeland By-Products Harvest from Natural Habitats in 2022

Table 3 Status of Rangeland By-Products - 2022

Indicator	Unit	Value
Total area of exploitation plans	Hectare	3.95
Total number of plans	Plan	845
Area of active exploitation plans	Hectare	2.85
Number of active projects licensed to operate	Plan	576
Amount of medicinal product withdrawal	Ton	2,200
Export	Ton	1,800

Source: Office of Rangeland Affairs, Forests, Rangelands, and Watershed Management Organization (2022)

Table 4 Status of Plans for the Exploitation of Rangeland By-Products in Target Provinces (2022)

Provinces	Area of Plan Implementation Zones (ha)	Number of Active Projects Licensed to Operate
Kerman	429,195.87	50
Semnan	13,493	7
Kurdistan	1,287,550.58	162
Mazandaran	2,183.69	13
Esfahan	1,062,085.5	170
Hamedan	228,986	90

Source: Office of Rangeland Affairs, Forests, Rangelands, and Watershed Management Organization (2022)

The Process of Issuing Permits for Exploitation of By-Products

Field studies and official data reveal a striking 480-day permit issuance timeline for managed harvesting plans compared to just 72 days for non-planned extraction – a 6.7-fold difference substantiated by interviews with 64 harvesters and 30 experts across six provinces and analysis of Tables 5-6. This disparity stems from fundamental process differences: managed plans dedicate approximately 8 months to ecological studies and sustainable yield assessments, while an additional 6 months are consumed by complex bureaucratic procedures involving 27 technical review and committee approval steps. Furthermore, continuous monitoring through 12 supervisory phases, including harvest tracking and precise royalty calculations, adds about 4 more months. In contrast, the simpler non-planned system with 23 administrative steps only requires basic site verification and transport permits (17 days intra-provincial, 23 days inter-provincial). While these structural variations reflect necessary ecological safeguards for resource sustainability, they simultaneously expose operational challenges, including specialist shortages, lack of integrated digital systems, and inter-agency coordination inefficiencies that require systemic reforms to balance environmental protection with practical implementation.

Table 5 Process of Issuing Exploitation Permits for Rangeland By-Products under a Management Plan

Step	Process Step	Hours	Days	Months
1	Government Service Center: Registration of the applicant's request for document scanning via the SAMT system	2	3	
2	Receipt and control of the applicant's information at the county level	2	3	
3	Referral of the request to the exploitation unit of the county's natural resources department	4	2	
4	Referral to the exploitation department expert	1	2	
5	Setting a time for the expert's field visit to the region		18	
6	Sending the applicant's request, along with the minutes, to the province for review and permit issuance	3	3	

7	Registration of the request in the department's secretariat via the web system	1	1	
8	Referral to the director-general for issuing orders and referral to the provincial exploitation department	3	2	
9	Referral to the exploitation department expert for review		4	
10	If there is a prohibition on harvesting the requested species, notification to the county and termination of the process	8	3	
11	If there is no prohibition on harvesting the requested species, referral to the exploitation department for a field visit and preparation of expert minutes		18	
12	Submission of expert minutes to the technical committee of the department	3	3	
13	Referral to the technical committee expert to set a date for the field visit	3	1	
14	Field visit by the technical committee expert and team, and preparation of minutes		18	
15	Technical committee resolution for the implementation of the study plan under Article 3 of the Natural Resources Conservation Law	7	14	
16	Notification to the applicant to prepare the plan based on the law (service description guidelines)	2	1	
17	Preparation of the plan by the applicant and submission to the technical committee for review and approval			8
18	Referral to the expert for study and resolution of technical issues, and approval of the plan by the technical committee			4
19	Referral to the Article 3 secretariat for publication of the notice and contract signing with the applicant			1
20	Applicant's visit to the department for file formation and administrative procedures, payment of royalties		2	
21	Notification of the start of exploitation operations and harvesting		1	
22	Continuous supervision by the exploitation department during the activity			
23	Written request by the exploiter for product transport, payment of royalties (government share)	2		
24	Dispatch of an expert to the region for weighing and calculating royalties (government share) and preparation of minutes		1	
25	Payment of royalties (government share) by the exploiter and submission of the receipt	2		
26	Issuance of the product transport permit outside the province with the signature and seal of the director-general	3		
27	Issuance of the product transport permit within the province with the signature and seal of the county head	3		
Total	Current Status	49	100	13

Table 6 Process of Applicant's Request for Obtaining an Exploitation Permit for Medicinal Plants without a Management Plan

Step	Process Step	Days
1	Issuance of the exploitation permit and referral to the exploitation department	1
2	Review and approval by the exploitation department	5
3	Referral to the exploitation department expert for review	2
4	Referral to the exploitation department for a field visit and preparation of minutes	1
5	Field visit by the exploitation department expert and team, and preparation of minutes	10
6	Submission of expert minutes to the technical committee	1
7	Referral to the technical committee expert for review	1
8	Technical committee resolution for the implementation of the plan	15
9	Notification to the applicant to prepare the plan	1
10	Preparation of the plan by the applicant and submission to the technical committee	8
11	Referral to the expert for study and resolution of technical issues, and approval of the plan by the technical committee	4
12	Referral to the Article 3 secretariat for publication of the notice and contract signing with the applicant	1
13	Applicant's visit to the department for file formation and administrative procedures, payment of royalties	2
14	Notification of the start of exploitation operations and harvesting	1
15	Continuous supervision by the exploitation department during the activity	
16	Written request by the exploiter for product transport, payment of royalties (government share)	2
17	Dispatch of an expert to the region for weighing and calculating royalties (government share) and preparation of minutes	1
18	Payment of royalties (government share) by the exploiter and submission of the receipt	2
19	Issuance of the product transport permit outside the province with the signature and seal of the director-general	3
20	Issuance of the product transport permit within the province with the signature and seal of the county head	3
Total	Current Status	72

Analysis of Table 7 data shows the permit issuance process takes 480 days when requiring a study manual, with the following phase durations: 10 days for initial registration, 54 days for field visits, 120 days for technical review, 30 days for final approval, and 8 days for transport permit processing. By eliminating the manual requirement, the process is reduced to just 72 days total, with registration shortened to 3 days, field visits to 10 days, technical review to 3 days, and final approval to 1 day, while transport permit processing remains unchanged at 8 days. The data reveals an 85% reduction in total processing time, with technical review showing the most significant improvement at 97% faster, followed by an 81% reduction in field visit duration, demonstrating how procedural optimization can dramatically improve efficiency while maintaining consistent timelines for transport-related procedures.

Table 7 Comparison of Permit Issuance Timeline with and Without Manual Requirements

Row	Process Step	With Manual (Days)	Without Manual (Days)
A) Common Steps			
1	Initial Registration	10	3
2	Field Visit	54	10
3	Technical Review	120	3
4	Final Approval	30	1
B) Transport Permits			
5	Permit Processing	8	8
Total		480	72

Obstacles and Challenges in the Process of Issuing Exploitation and Transport Permits for By-Products

According to Table 8 data, the permit issuance process reveals systemic challenges across five key dimensions: technical-systemic challenges, including fragmented digital platforms, manual processes, and inter-provincial inconsistencies; legal-policy challenges such as illegal harvesting, contract violations, and policy-local condition mismatches; technical-supervisory challenges featuring inadequate monitoring systems and specialist shortages; economic-livelihood challenges marked by community poverty, high royalty rates, and financing barriers; and socio-cultural challenges involving local resistance and knowledge gaps. These interconnected issues collectively undermine sustainable resource management, where transparency deficits in permit issuance combine with weak oversight to enable unauthorized harvesting, while inappropriate spatial unit definitions and local community exclusion exacerbate economic marginalization and destructive practices. Concurrently, excessive plan preparation costs and royalty rates disproportionately burden small-scale operators, further discouraging legal compliance. The absence of reliable data particularly compromises yield calculations and planning accuracy. This comprehensive analysis demonstrates that effective solutions require an integrated strategy: deploying centralized digital systems to address fragmentation and data gaps, legal reforms through local stakeholder engagement, enhanced field monitoring utilizing local specialists, and supportive economic mechanisms, including adjusted royalty structures and financial accessibility measures.

Table 8 Categories resulting from axial coding

Row	Concept code	axial concepts
1	Lack of a unified system platform and multiplicity of systems	Systemic and Technical Challenges
2	Physical nature of a large part of the process (traditional and manual system), prolonging the process time	
3	Lack of uniformity and integration of the process across provinces	
4	A high number of exploiters and time-consuming administrative procedures for obtaining permits between counties and departments	
5	Illegal harvesting of products beyond the volume specified in the contract	Legal and Policy-Related Challenges
6	Lack of transparency in laws and policies	
7	Incompatibility of laws with local and regional conditions	
8	Non-compliance with technical points and recommendations in the contract by the exploiter	
9	Inappropriate definition of the spatial unit in the plan (customary system, county)	
10	Allocation of exploitation rights to non-local individuals and non-utilization of local communities, leading to destructive behaviors	
11	Restrictive nature of current export laws and raw material sales	
12	Lack of transparency in issuing permits and prevalence of relationships over regulations	
13	Lack of a comprehensive monitoring and feedback system	Technical and Supervisory Challenges
14	Uniform issuance of permits for agricultural cultivation of medicinal plants and harvesting from natural habitats	
15	Weaknesses in Supervisory Systems	
16	Shortage of specialized human resources for supervision	
17	Negligence of supervisors in reporting actual production and harvesting (known as "years")	
18	Unauthorized harvesting by small-scale exploiters	
19	Lack of financial mechanisms for revising exploitation plans for by-products and medicinal plants	
20	Lack of accurate data	
21	Incompatibility of harvesting methods with sustainable principles	
22	Poverty and dependency of local communities	Economic and Livelihood Challenges
23	Inequitable distribution of benefits	
24	Limited financial and economic capacity of exploiters to prepare plans, and high costs of plan preparation by consultants	
25	High royalty rates	
26	Lack of insurance support	
27	Obstacles and challenges in providing bank facilities to exploiters for implementing plans	
28	Lack of technical knowledge among exploiters on how to exploit medicinal products	Social and Cultural Challenges
29	Resistance from local communities	
30	Lack of active participation from local communities	

DISCUSSION

The investigation prioritizes these questions to transform empirical findings into policy recommendations for enhancing operational efficiency in natural resource governance. In the first part, the steps and time required for the process of issuing exploitation permits for medicinal plants in natural habitats in the country were examined, and then the obstacles and challenges in the implementation cycle of this process were analyzed and scrutinized. In the first part, the results showed that the process of requesting an exploitation permit for medicinal plants with a project booklet involves 27 steps and takes approximately 16 months. Based on this, the process of requesting an exploitation permit for medicinal plants without a project booklet involves 23 steps and takes about 67 days. The time required to obtain a transportation permit within the province is 17 days, and for outside the province, it is 22 days. The time required to execute the process of obtaining a permit in the first part, i.e., exploitation within the framework of a project, is lengthy. These results are consistent with the World Bank report [12], which evaluated Iran's status among various countries as very unfavorable. In this study, the obstacles and challenges in the process of obtaining exploitation permits for medicinal plants in the country were also examined. Ultimately, 30 obstacles were identified and confirmed as problems and damages in the process of issuing exploitation and transportation permits for by-products and medicinal plants in five main categories (systemic, legal, monitoring, economic, and socio-cultural). In the category of systemic

obstacles, components such as the multiplicity of systems and the lack of an integrated system, the lack of a unified approach and a common platform for implementing processes in provinces, and the physical nature of a large part of the processes (traditional system) are among the main obstacles and challenges of the current processes, which are somewhat consistent with research [13] on the lengthy processing time, lack of transparency in the review process, lack of integrated systems, and manual and stringent processes, studies [14] on the lack of timely system updates, high volume of documents and paper-based forms, research results [15] on the lack of accurate information provided to applicants during the process, and the findings of Karimi *et al.* [16] regarding the impact of technical limitations such as the lack of infrastructure and process information. In the category of legal and regulatory obstacles, components such as illegal and unauthorized harvesting of products beyond the contract volume, lack of transparency and comprehensiveness in laws, incompatibility of laws with local and ecological conditions, restrictive current laws on product exports and raw material sales, and the prevalence of favoritism over regulations are among the existing obstacles. These issues can lead to incorrect and inefficient implementation of permit issuance systems. These problems are consistent with FAO evaluations [2]. In the category of technical and monitoring challenges, several factors, including weaknesses in monitoring systems, shortage of specialized human resources for providing monitoring services, overlooking by monitors in reporting actual production and harvest (known as "yearly"), unauthorized harvesting by small-scale exploiters, lack of financial mechanisms for revising exploitation plans for by-products and medicinal plants, and lack of accurate data are among the main problems in the permit issuance process in this category. In many areas, there is a shortage of specialized and trained human resources to monitor the permit issuance process and enforce laws. This issue can lead to violations and illegal exploitation of natural resources. This is particularly evident in remote and hard-to-reach areas. This reality is consistent with Kala's research [2]. In the category of economic and livelihood challenges for exploiters, poverty and dependency of local communities, inequitable distribution of benefits, limited financial and economic capacity of exploiters to prepare plans, and high costs of plan preparation by consultants, high royalty rates, and lack of insurance support are among the major challenges in the process of issuing exploitation permits for medicinal plants and by-products. Local communities, due to poverty and lack of access to alternative income sources, resort to illegal exploitation of medicinal plants and rangelands. This issue, which can lead to the destruction of natural resources and reduced effectiveness of permit issuance systems, has been confirmed in Shanley's research [17]. In the category of socio-cultural challenges, obstacles such as the lack of technical knowledge among exploiters on how to exploit medicinal products, resistance and dissatisfaction of local communities, and ultimately the lack of active participation and cooperation of these communities are considered issues in the implementation process of permit issuance. In many cases, local communities are not involved in the decision-making process and enforcement of laws related to permit issuance, which can lead to dissatisfaction and a lack of cooperation [18]. In some areas, local communities resist the enforcement of laws and regulations due to a lack of awareness of the importance of natural resource conservation or heavy reliance on these resources. This issue can lead to the failure of permit issuance systems [19]. Based on the permit issuance process analysis, sustainable harvesting of non-threatened, high-value species like thyme (Thymus spp.), borage (Echium amoenum), and Kelussia (Kelussia odoratissima)—with proper techniques (e.g., harvesting petioles instead of flowering stems)—is recommended. Policy should focus on three pillars: Prioritizing ecologically resilient species (e.g., Ferula assa-foetida gum extraction that doesn't harm mother plants), streamlining permits for high-value, robust species like gum tragacanth (Astragalus spp.) by reducing approval time from 480 to 240 days' maximum, and implementing smart monitoring for keystone species with both economic value and stable populations. This balanced approach simultaneously supports ecosystem conservation, local livelihoods, and reduction of illegal harvesting, aligning with China's successful models of combining electronic monitoring with community-based management [6], while adapting specifically to Iran's rangeland conditions and administrative context. Pilot implementation should focus on species demonstrating optimal sustainability-economic viability ratios under controlled harvesting protocols. Ultimately, improving Iran's medicinal plant permitting requires a holistic approach addressing ecological, economic, and social dimensions simultaneously. Successful models from China [2] demonstrate that combining technological (e.g., electronic monitoring), economic (e.g., tax incentives), and social (e.g., community education) solutions can significantly enhance system efficiency. Pilot implementation of these strategies in selected Iranian provinces (e.g., Kerman, Kurdistan) is recommended as an initial step toward comprehensive reform. The final results of this analysis provide a comprehensive paradigm model that has been able to explain the complexities of the licensing system for the exploitation of rangeland by-products and medicinal products in 6 provinces of the country. This analysis shows how factors such as the fragmentation of the decision-making structure and the weakness of smart and integrated infrastructures, in interaction with contextual conditions such as ineffective supervision and legal and regulatory problems, shape the central phenomenon of "licensing system inefficiency" in this field. Accordingly, strategies such as digital transformation and administrative and structural decentralization can lead to desirable outcomes such as system transparency and rangeland productivity. A critical insight from this analysis is the multi-level nature of the solutions: technical measures (e.g., system integration) must be implemented in tandem with legal reforms (e.g., revising existing regulations) and social initiatives (e.g., user and community education) to achieve comprehensive effectiveness. These findings not only advance theoretical frameworks for natural resource management but also offer actionable policy recommendations.

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