



Assessing sustainability of urban environment using the IUCN framework and IDIA model: A case study of Yasuj, Iran

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Article Info	Abstract
Article type: Research Article	Sustainability assessment has become crucial for balancing ecological protection and human well-being. This study evaluated sustainability using the International Union for Conservation of Nature (IUCN) framework, which compares existing conditions to an ideal sustainable state. The goal was to analyze sustainability through various indicators and develop systematic scenarios for improved sustainability planning. This research used the IUCN framework and the IDIA model to assess sustainability. The human welfare category included three criteria and seven indicators, while the ecosystem sustainability category comprised four criteria and eight indicators. All indicators were scored on a scale from 0 to 100, and final scores were averaged to determine overall sustainability. The results indicated that the ecosystem sustainability score was 57, while the economic and social sustainability score was 50. Based on the sustainability barometer, the study categorized the region as "moderately sustainable." The findings highlighted the need to prioritize ecosystem protection and improve the quality of life for residents. The IDIA model was further used to design systematic scenarios, helping develop effective strategies and practical measures to align with sustainability goals. This study provides valuable insights for policymakers to enhance sustainability efforts. Sustainable development can be effectively achieved by integrating ecological protection with socio-economic improvements. These findings may apply to other regions facing similar sustainability challenges.
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Introduction

The world population exceeds 8 billion and is projected to reach 9.7 billion by 2050 (United Nations, 2019). This rapid growth and increased demand for resources pose significant challenges. Effective farmland and forest management is crucial for carbon sequestration and ecosystem resilience. Sustainable agricultural and forestry practices are essential to maintain vital services such as flood control, disease regulation, food and water supply, nutrient cycling, and recreation (FAO, 2020). Additionally, urbanization, poverty, and unemployment further strain natural resources. In low-income regions, this often leads to deforestation and overexploitation, threatening sustainability (IPCC, 2021).

Assessing ecosystem sustainability is vital for development planning, supporting the maintenance and improvement of ecosystem services (Balist et al., 2022). Sustainable development has influenced many aspects of human life, including poverty, health, education, environment, and international cooperation. It emerged in response to threats to humanity's life cycle and ecological balance (United Nations, 2015; World Bank, 2018). It aims for a balanced and equitable future (Cornescu & Adam, 2014). Sustainability is a multidimensional concept encompassing environmental, economic, and social aspects and emphasizes meeting present needs without compromising the future (Purvis et al., 2022).

Addressing environmental degradation and social inequality requires integrated strategies (Lusseau & Mancini, 2019). Poor water resource management contributes to urban instability (Balist et al., 2022). Research also links hydrology and sustainable development, showing the influence of socio-economic factors on urban sustainability (Santiago et al., 2011). Urban sustainability is critical, as resource instability directly impacts citizens' well-being (Chaves & Alipaz, 2007). Rising awareness of natural resource value has led governments to adopt sustainability approaches centered on people, profit, and planet (Darabi et al., 2023; Cornescu & Adam, 2014). Today, sustainability underpins

most urban development initiatives (Shen et al., 2023).

The process of sustainability evaluation and development are intertwined, working together to address socio-economic and resource challenges (Yari Hesar et al., 2011). Evaluation turns sustainability into a measurable objective. Thus, sustainability assessments track progress and identify influencing factors (Chansarn, 2008; Schlor et al., 2013). Proper management balances ecosystem protection and use (Sneddon, 2000; Tompkins & Adger, 2003). Valid sustainability indicators are crucial for monitoring progress and guiding management plans. Yet, sustainable development definitions often lack practical guidance on measurement.

To fill this gap, the IUCN has developed tools to assess natural resource management in environmentally sound ways. Its approach evaluates human and ecosystem health simultaneously. Widely used in South Asia, the IUCN method has helped rebuild environments and improve life quality. For example, Sri Lanka shows better sustainability due to stronger water management, while Bhutan faces greater challenges (IFF, 1999). An IUCN-based study on Kheyrodkenar and Gulbend forests in Iran found medium sustainability in the former and poor conditions in the latter (IUCN, 2010).

Bossel (1999) proposed models like ecological footprint, barometer of sustainability, and pressure-status-response for sustainability assessment. Xu et al. (2022) used an improved entropy weight model to assess rural sustainability in China, while Loizou et al. (2014) examined economic policies in Greek coastal areas. Asadi Nilivan et al. (2013) studied sustainability in Iran's Taleghan-Zidasht watershed, and Irungu et al. (2023) highlighted the role of innovation networks in rural sustainable development. These networks foster collaboration and progress toward UN Sustainable Development Goals.

Masoudi et al. (2023) developed a GIS-based multi-criteria evaluation (MCE) model to assess land suitability in Fasa County,

integrating AHP and OWA methods. Their fuzzy logic-based model accounts for uncertainty and stakeholder trade-offs. Tong et al. (2018) proposed integrating sustainability indicators with the Viable System Model (VSM), offering a systemic approach across levels. These integrated methods strengthen the credibility of research and decision-making.

In the present study, the IUCN method was used to assess sustainability in Yasuj, a city in Kohgiluyeh and Boyer-Ahmad Province, examining social, economic, and environmental aspects. The AIDA technique, a key tool in strategic planning, was employed to analyze interrelations among goals and phenomena. Refinement of micro-goals and macro-objective formulation were emphasized for developing Yasuj's sustainability strategy. Realizing

development is tied to public interest, which in turn supports participatory and integrated development planning.

Materials and Methods

Study Area

Yasuj, the capital of Kohgiluyeh and Boyer-Ahmad Province in Iran, is situated in the Zagros Mountains (Figure 1). Known for its industrial activities and a rich history dating back to the Bronze Age, Yasuj features a unique Mediterranean climate with abundant rainfall (820 mm annually) and a long dry season, making it the wettest city in Iran south of the Alborz Mountains. This bustling urban center has a rapidly growing population, increasing from 134,000 in 2016 to 194,000 in 2023, driven by a diverse economy ranging from traditional handicrafts to constructing a new refinery (Yasuj Municipality, 2016 and 2023).

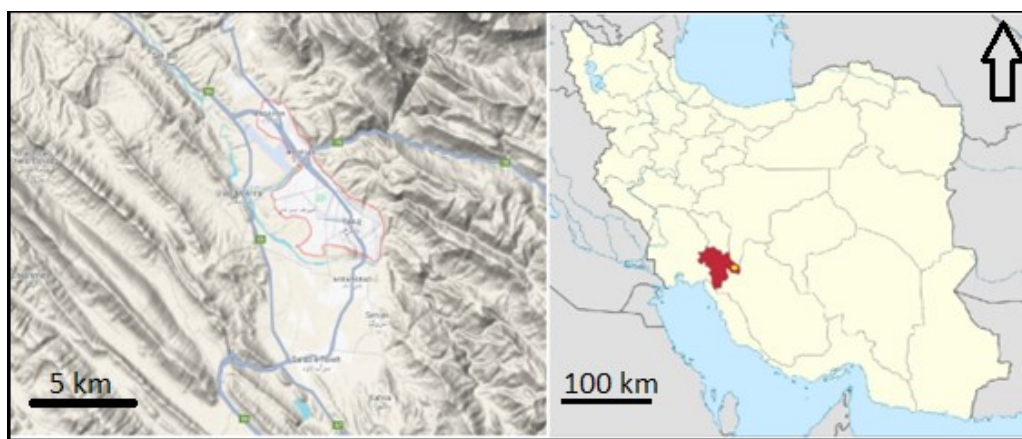


Figure 1. Yasuj city

Evaluation of the stability status of Yasuj with the IUCN model

The IUCN method analyses seven stages to determine the sustainability management criteria and indicators (Council for Scientific and Industrial Research, 2003). Finally, the results of the values and calculations are judged using the stability diagram. Dimension description is followed by identifying its components and goals in this approach. In the third stage, the selection of criteria and its results are discussed in the seven-stage cycle. In the IUCN method, two dimensions of people and the ecosystem are individually defined but are compared in

assessments (Alberti, M. and Marzluff, J.M., 2004). Dimensions of the ecosystem are broadly defined from the international level to the management unit, as well as the dimensions of the economic and social components of the people. These criteria can be removed or added depending on the ability to generate information on them or their importance at any level. Given the variability of some criteria, they may also be evaluated at specific levels. The nature of some components in a system differs from one another according to the standards in each country or region. The sustainability assessment cycle is shown in Figure 2.

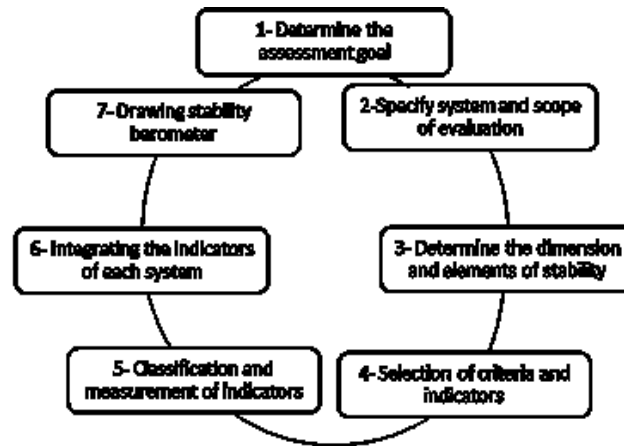


Figure 2. The sustainability assessment cycle

Determining the assessment goal

This study aimed to evaluate and identify the current sustainability situation in Yasuj and assess how planning and management in previous periods have impacted its sustainability. In this context, it is necessary to identify the components that have been strengthened and weakened in the region.

Specifying the system and scope of evaluation

The scope of the evaluation should be specified at this point. The levels of this territory are important in both the ecosystem and the human sector. The IUCN method includes two major cosystems and human systems investigating the natural system at the surface and the human system studied throughout Yasuj.

Determining the dimension and elements of stability

A set of elements characterizes the dimensions of the system's sustainability. In this study, the pattern of the IUCN approach was determined considering the experiences in the sustainability basin of urban fields of sustainability elements (Bryden, 2002; Pourtaheri et al., 2010; Yari Hesar et al., 2013).

Selection of criteria and indicators

At this stage, appropriate criteria and indicators are defined for each element. Selected criteria and indicators should primarily reflect each element's evaluation objective and dimension; furthermore, data collection feasibility is essential (IUCN, 2005). The criteria and indicators were chosen based on the model depicted in Figure 3 and through a comparative review of relevant resources. This phase aimed to streamline the evaluation process by concisely selecting key criteria and indicators that represent the region.

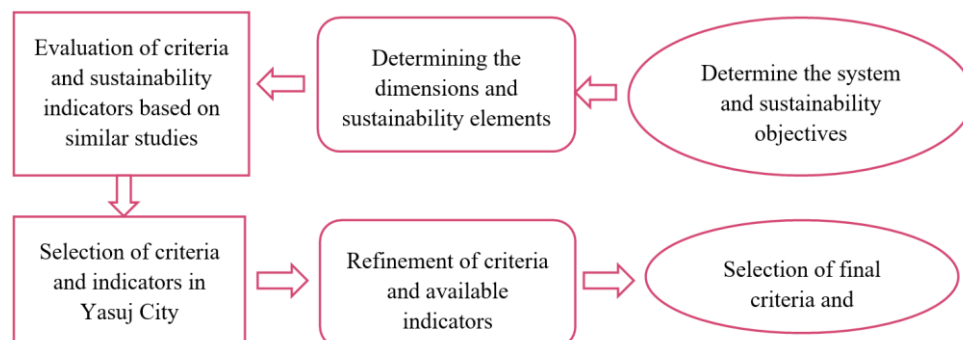


Figure 3. Selection pattern and sustainability criteria and indicators

Classification and measurement of indicators

At this stage, each index was classified to determine the quality or range of the indexes relative to the area studied in the stability barometer. The indices' values were hierarchically divided using well-being score software, ranging from zero to 100, and then consolidated as follows: (0-20: unstable, 21-40: almost unstable, 41-60: medium stability, 61-80: almost stable, and 81-100: stable). Indicators were utilized to evaluate the studies, alongside interviews with experts from the General Directorate of Natural Resources and Watershed Management, Yasuj Health Center, Planning and Budget Organization, and the Governorate. In total, the expert opinion-based evaluation method involved 15 experts to assess the status of the indicators (Bossel, 1999; Koschke et al., 2012).

Integrating the indicators of each system

At this stage, the scores of all indicators were determined based on the mean of total scores for each criterion, element, dimension, and subsystem (Yari Hesar et al., 2013).

Drawing Stability Barometer

After determining the scores of all indices in each system, a stability barometer was drawn in the last step to determine the stability status of the study area. These values are depicted on a specialized diagram known as the Stability Barometer, which utilizes two axes graded into five sections (poor, fair, average, good, and excellent) to visualize actionable patterns.

Identifying different areas of decision-making in formulating the future development perspective of Yasuj city based on the AIDA model

This method is used to understand how one decision affects the choices of other decisions in a large-scale project

(Nazarpour et al., 2017). The complexity of the issues in the planning process causes the decision-making of one phenomenon or problem to influence the decisions made about other phenomena. The AIDA technique in the strategic planning system holds a special position in examining how decisions and phenomena affect each other. The scenario elements are at the top level, and the more detailed policy arenas are at the middle level. The proposed projects are also considered statements of action at the lowest level. First, decision environments are defined where an option or choice is needed among the plethora of plausible answers, providing a specific way of organizing and classifying the problem environment. Secondly, the elements and options available in each area of the decision are identified. To achieve possible scenarios (different series of elements of the decision-making arena), one must consider how different elements of these scenarios are compatible or incompatible. In the present study, the matching matrix was used to investigate this problem, and the result of the combination of the elements' powers is classified into six categories: positive incremental (opportunity), adaptive, indifferent, uncertain, non-conforming, and negative incremental non-conforming (threat). In the third step, the decision tree identifies all possible scenarios at the strategic level. Scenarios are acceptable if they finish with no intra-system conflict. The term "compatible series" is used to introduce such scenarios. A consistent series describes a combination of options adapted from each decision-making domain, which probably does not violate compatibility rules in the common formulation of the decision problem. Finally, refining micro goals and defining macro goals should be considered in determining future development prospects. Setting the major strategic

development plans and policies depends on the existence of the strategic plan. A plan on which the importance of space can be defined at the macro and middle levels and, based on the opportunities, capabilities, and capacities of the spaces, provides the appropriate impetus for urban development.

Results and Discussion

Results of Yasuj sustainability barometer by the IUCN method

This study used the IUCN sustainability approach to evaluate sustainability in the study area (Yasuj). After identifying the main systems, the dimensions for each system and the corresponding elements were specified for each dimension of every system. Each element was evaluated and quantified according to several criteria. Indexing was performed to evaluate each criterion. At the implementation stage, all the indices were measured based on the relevant tables, and then the benchmark value was obtained by combining the indices of each criterion. The same process continued until calculating the value of each system. The region's natural and human ecosystem status was determined by knowing the value of each system and its placement in the sustainability chart. The

following tables describe the elements, criteria, and indicators of sustainability assessment for each system, along with their ratings in the study area. According to these tables, seven criteria and 15 indicators were selected to evaluate the area's sustainability. Table 1. Plant diversity indicator, Table 2 Animal diversity indicator, Table 3 forest degradation indicator, Table 4. Water resources quantity indicator, Table 5 Water quality indicator, Table 6. Soil Erosion indicator, Table 7. Agriculture indicator, Table 8. Livestock indicator, Table 9 Employment indicator, Table 10. Revenue indicator, Table 11. Cost indicator, Table 12 Infrastructure indicator, Table 13 Combined Age indicator, Table 14. Migration indicator, Table 15. Literacy indicator, Figure 3. Barometer Sustainability Indicators, Figure 4. Barometer sustainability criteria, Figure 5. Barometer sustainability elements, Figure 6. Sustainability Barometer criteria, Figure 7. Barometer stability in Yasuj.

Results of Natural Ecosystem Indicators in Stability Barometer

The results of natural ecosystem parameters are presented in Tables 1 to 15.

Table 1. Plant Diversity Indicator

Indicator	Description of Indicator	Points	stability
Plant Diversity	Great Diversity	81-100	Stable
	High Diversity	61-80	Almost Stable
	Medium Diversity	41-60	Medium Stability
	Low Diversity	21-40	Almost unstable
	Very Low Diversity	0-20	unstable

Table 2. Animal diversity Indicator

Indicator	Description of Indicator	Points	Stability
Animal Diversity	Great Diversity	81-100	Stable
	High Diversity	61-80	Almost Stable
	Medium Diversity	41-60	Medium Stability
	Low Diversity	21-40	Almost unstable
	Very Low Diversity	0-20	unstable

Table 3. Forest Degradation Indicator

Indicator	Description of Indicator	Points	Stability
forest degradation	Very low Intensity	81-100	Stable
	low Intensity	61-80	Almost Stable
	Moderate Intensity	41-60	Medium Stability
	High Intensity	21-40	Almost unstable
	Very High Intensity	0-20	Unstable

Table 4. Water Resources Quantity Indicator

Indicator	Description of Indicator	Points	Stability
Water resources quantity	Great	81-100	Stable
	High	61-80	Almost Stable
	Medium	41-60	Medium Stability
	Low	21-40	Almost unstable
	Very Low	0-20	unstable

Table 5. Water Quality Indicator

Indicator	Description of Indicator	Points	Stability
Water quality	Great	81-100	Stable
	High	61-80	Almost Stable
	Medium	41-60	Medium Stability
	Low	21-40	Almost unstable
	Very Low	0-20	Unstable

Table 6. Soil Erosion Indicator

Indicator	Description of Indicator	Points	Stability
Soil Erosion	Very low Intensity	81-100	Stable
	low Intensity	61-80	Almost Stable
	Moderate Intensity	41-60	Medium Stability
	High Intensity	21-40	Almost unstable
	Very High Intensity	0-20	unstable

Table 7. Agriculture Indicator

Indicator	Description of Indicator	Points	Stability
Agriculture	Great Level	81-100	Stable
	High Level	61-80	Almost Stable
	Medium Level	41-60	Medium Stability
	Low Level	21-40	Almost unstable
	Very Low Level	0-20	unstable

Table 8. Livestock Indicator

Indicator	Description of Indicator	Points	Stability
Water resources quantity	Great	81-100	Stable
	High	61-80	Almost Stable
	Medium	41-60	Medium Stability
	Low	21-40	Almost unstable
	Very Low	0-20	unstable

Results of human indicators in the stability barometer

The results of the human indicators are presented in tables 9 to 15.

Table 9. Employment Indicator

Indicator	Description of Indicator	Points	Stability
Employment	Very High Coefficient	81-100	Stable
	High Coefficient	61-80	Almost Stable
	Medium Coefficient	41-60	Medium Stability
	Low Coefficient	21-40	Almost unstable
	Very Low Coefficient	0-20	unstable

Table 10. Revenue Indicator

Indicator	Description of Indicator	Points	Stability
Revenue	Great	81-100	Stable
	High	61-80	Almost Stable
	Medium	41-60	Medium Stability
	Low	21-40	Almost unstable
	Very Low	0-20	unstable

Table 11. Cost Indicator

Indicator	Description of Indicator	Points	Stability
Cost	Great	81-100	Stable
	High	61-80	Almost Stable
	Medium	41-60	Medium Stability
	Low	21-40	Almost unstable
	Very Low	0-20	unstable

Table 12. Infrastructure Indicator

Indicator	Description of Indicator	Points	Stability
Infrastructure	Extensive Development	81-100	Stable
	High Development	61-80	Almost Stable
	Medium Development	41-60	Medium Stability
	Low Development	21-40	Almost unstable
	Very Low Development	0-20	unstable

Table 13. Age Combined Indicator

Indicator	Description of Indicator	Points	Stability
Age Combined	Very Young	81-100	Stable
	Young	61-80	Almost Stable
	Middle Age	41-60	Medium Stability
	Old	21-40	Almost unstable
	Very Old	0-20	unstable

Table 14. Migration Indicator

Indicator	Description of Indicator	Points	Stability
Migration	Very Low Rates	81-100	Stable
	Low Rates	61-80	Almost Stable
	Average Rates	41-60	Medium Stability
	High Rates	21-40	Almost unstable
	Very High Rates	0-20	unstable

Table 15. Literacy Indicator

Indicator	Description of Indicator	Points	Stability
Literacy	Great	81-100	Stable
	High	61-80	Almost Stable
	Medium	41-60	Medium Stability
	Low	21-40	Almost unstable
	Very Low	0-20	unstable

Determining the measurement values of the indicators

The quantitative values of indicators are presented in the table 16.

Table 16. The Measured Values of the Indicators

	Indicators		Criteria	ia	Elements		Dimension	
Ecosystem	Plant diversity	70	Biodiversity	60				
	Animal Diversity	50						
	Forest destruction	70	Forest destruction	70				
	Quality of water resources	70						
	Quantity of water resources	70						
	Soil erosion	50	Ambient quality	63	land cover quality	64	Cover	64
	Agriculture	50						
	Livestock	50	Forest use	50	Direct use of resources	50	Resources use	50
People	Employment	30	Employment	30				

	Indicators		Criteria	ia	Elements		Dimension	
	Income	50						
	Cost	50						
	Infrastructure	30	Material welfare	43	Family economy	36.5	Wealth	36.5
	Age combination	50						
	Migration	70						
	Literacy	70	Population Characteristics	63	Demographics	63	Population	63

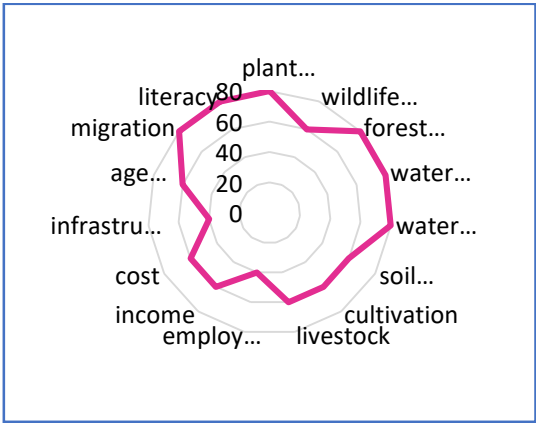


Figure 4. Barometer for Sustainability Indicators

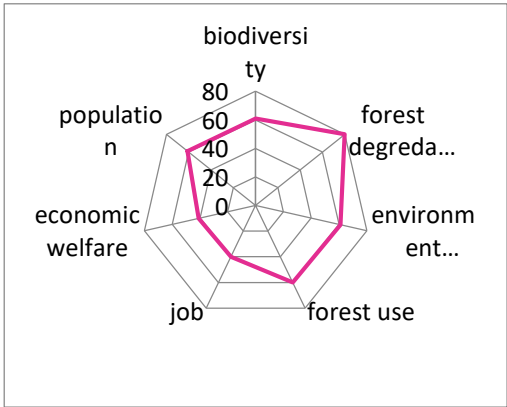


Figure 5. Barometer for Sustainability Criteria

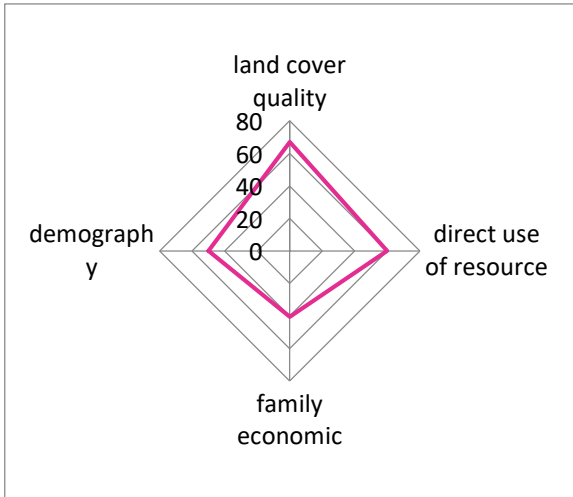


Figure 6. Barometer for Sustainability Elements

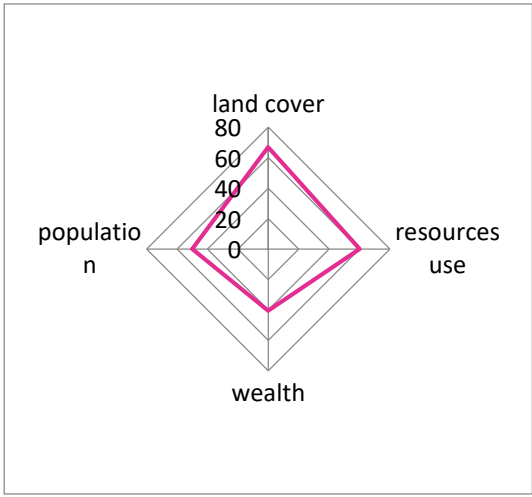


Figure 7. Barometer for Sustainability Criteria

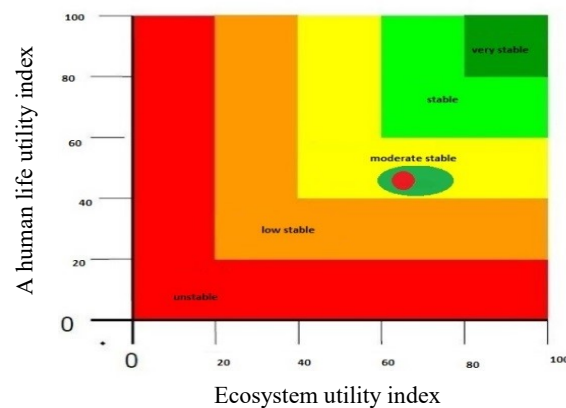


Figure 8. Barometer for Stability in Yasuj

Barometer for stability of Yasuj based on the results: The Sustainability Barometer of Yasuj shows that the ecosystem is in average stability. The human sector of the study area is also in average sustainability. However, the status of the human sector stability is lower than that of the ecosystem sector, but it is located in the average area on the barometer in Figure 8. This sector's economic aspects, specifically income and employment, are more unstable than the other sectors.

AIDA results

This section deals with refining the micro

goals and compiling the macro goals that should be considered in compiling of's future prospects of Yasuj. Considering the strategic importance of this level of study, the purpose of this section is to provide general analyses to determine the macro policies in the compilation of the future development prospects of Yasuj based on the analysis and questionnaires collected from the city.

Compiling Goals (Macro and Micro)

After defining the micro goals, it is necessary to derive the macro and interoperable goals according to previous studies (Table 17).

Table 17. Compilation of Micro and Macro Goals

Macro Goals	Micro Goals (Objectives)
Creating an appropriate environment and reducing environmental problems.	Appropriate exploitation of the environmental capabilities of the region promotion of the city environmental system. Identifying and reducing ambient and environmental hazards. Utilizing environmental capabilities in adjusting the city landscape.
Expansion and renovation of urban facilities.	Organizing utilities, gas, telephone, and sewage networks. Supplying and balancing the infrastructure.
Expanding cultural, recreational, and welfare services.	Reducing the shortage of welfare and public services in the city. Providing services and infrastructure needed by the city based on the role of the city.
Organizational improvement Organizational management and urban finance.	Preparation for public participation in the urban management system increases the workforce's efficiency. Expanding municipal management's legal, financial, and credit powers, strengthening and supporting financial and municipal credit.
Improvement of living and economic welfare.	Attracting and encouraging foreign investment. Defining the appropriate economic role for the area under study.
Expanding public participation in the decision-making process.	Providing convenience to promote public participation, citizenship training, and citizenship rights.
Promoting the share of tourism revenue in the urban economy.	Taking advantage of the city's potential in attracting tourists.

Generating and selecting top scenarios

The process begins by identifying core scenario elements, which are arranged in a circular diagram. Each element's attributes are then mapped within this structure, and incompatible options are connected with lines. Following this, a tree diagram is generated to outline all possible scenarios. To incorporate decision-making priorities, the elements are ordered within the tree based on their importance in the planning process. Each resulting scenario is then fully articulated at the conclusion of this stage.

Determining the Policy Areas

Following the identification of appropriate scenarios, specific policies must be developed for each scenario element to assess

compatibility between policy areas. From the 11 resulting scenarios, the three with the highest ratings and fewest incompatibilities were selected for a detailed compatibility analysis. For this perspective compilation, the integrated perspective was chosen as the published framework, with policy areas and their compatibilities detailed in Tables 18-21. Finally, to translate this foresight into action, urban development plans for Yasuj City will be implemented based on the collected questionnaire data and the selected scenario from the AIDA model.

Strategies, Policies, and Implementations in different sections of social, economic, tourism, urban management, and environment-economic development

Table 18. Economic Development

Strategies	Policies	Actions (executive program)
Foster public-private partnerships	Supporting the development of investment in tourism	Launch joint public-private employment projects
Develop and strengthen complementary agricultural industries	Revitalizing the historical sites of the city and transferring them to the private sector for use and functionality changes	
Enhance the role of tourism in the city's economy	Providing grounds for the transfer of tourist stocks to the public	Investing in the construction of recreational-tourism complexes to add employees in this sector
Boost investment in tourism marketing for local crafts	Developing tourist subdivisions such as cultural, scientific, and natural tourism concerning environmental capabilities Establishing incentives and policies to attract investment in the tourism sector	Lending loans to people with low incomes to increase self-employment among these groups
	Using natural capital and ensuring sustainable development	

Table 19. Social Development

Strategies	Policies	Actions (Executive program)
Increasing the power of citizenship	Increasing people's access to information	Developing a network for municipal and cultural heritage information
Utilizing cultural richness to achieve a sustainable society	Promoting and training on citizenship rights and duties	Promoting and teaching citizenship rights to students to institutionalize these principles
Improving the quality of low-income areas in the city	Emphasizing and enhancing Indigenous culture to transform it into tourist culture	Allocating part of the housing investment to urban low-income groups (urban poor)
Emphasizing the strengthening of urban identity	Increasing the level of people's sensitivity to urban affairs	Creating recreational and research parks on the outskirts of the city
Increasing social interactions	Providing housing for low-income areas	Establishing a downtown parking lot
	Creating job opportunities for residents	Identifying and creating a pedestrian tourism center within the city
	Enhancing the city entrances, especially from Saqqez and Marivan	

Table 20. Improving Urban Management

Strategies	Policies	Actions (Executive Program)
Increasing public participation	Providing the necessary background for the creation of integrated urban management	Providing information about city plans on municipal websites and billboards
Enhancing communication between enforcement agencies	Increasing people's access to information	Selecting district-level representatives to contact the City Council (in the form of customary neighbourhoods)
Increasing the specialization level of forces	Establishing local councils to form city councils	Referring student projects to executive centers for information on existing issues and efforts to address them
Promoting interaction between executive organizations and universities	Defining research projects for executive agencies at Yasuj University	Defining projects on urban issues and allocating funds for research in these areas
	Determining the tasks of different organizations to eliminate possible overlaps	
	Increasing the expertise level of various departmental forces influencing urban management	
	Organizing working meetings between executive and public stakeholders	

Table 21. Environmental Protection

Strategies	Policies	Actions (executive program)
Reducing environmental pollution through increased efficiency of urban infrastructure	Adopting laws regarding environmental protection	Designing and distributing environmental brochures in the city to inform about urban environmental hazards
	Promoting and training on environmental protection	Defining a Health Village with both environmental and tourism aspects
	Emphasizing and strengthening the cultural heritage related to environmental protection	Holding conferences and meetings on environmental protection
	Planning for Urban Renewal	
	Preventing environmental damage and addressing its perpetrators	
	Strengthening non-governmental organizations in the field of education and promotion of environmental protection policies	
	Studying the feasibility of recycling waste	

Conclusion

Iran's geographical location, geomorphological, and climatic conditions render most ecosystems highly fragile. Even minor human interventions can lead to their decline and instability. The country's extensive arid and semi-arid rangelands have suffered from unsustainable exploitation of natural resources, disrupting ecological balance. This has resulted in shorter lifespans of dams, increased frequency of floods, loss of vegetation, desertification, intensified droughts, landslides, and soil erosion. Despite substantial investments in various fields like rangeland and watershed management, the potential of these areas is dwindling due to improper exploitation patterns.

Iran faces significant economic losses due to environmental degradation, with more than 50 floods annually causing daily damages amounting to 300 million Toman (approximately 27,000 US dollars). These floods also contribute over 2 billion tons of sediment annually, threatening 250 cities and 2,000 villages. The primary cause is the destruction of vegetation, particularly in

rangelands, exacerbated by unsustainable practices.

Increasing awareness of environmental, social, and economic values has prompted world leaders to express concerns about natural resource degradation. The concept of sustainable development, introduced by the World Commission on Environment and Development, aims to achieve socio-economic progress without compromising cultural, social, and ecological systems. However, despite global acceptance of sustainable development goals, there remains a lack of concrete strategies for achieving them.

The IUCN approach offers a framework to assess sustainability by defining metrics and indicators, guiding policies, and interventions to promote sustainability. Sustainable local development entails positive socio-economic changes that align with local communities' cultural, social, and ecological systems. Achieving this requires coherent political processes, effective planning, management, monitoring, and social learning (Soubbotin, 2004).

Sustainability assessment is a systematic process that evaluates a plan, policy, or project's environmental, economic, and social impacts to ensure sustainable development (Sala et al., 2015). It helps identify the current state of sustainability across various dimensions and provides a comprehensive understanding of the existing situation (Bond et al., 2012). This assessment lays the groundwork for integrated and holistic planning to achieve desired sustainability outcomes (Zijp et al., 2022). Unlike ecological footprints, which compare sustainability levels among different countries or regions, sustainability assessment focuses on evaluating the sustainability performance of a specific plan, policy, or project within a local context (Ness et al., 2007). It considers the local area's unique characteristics, challenges, and opportunities, enabling planners to develop tailored strategies and interventions (Hacking & Guthrie, 2008). The IUCN approach evaluates sustainability at both macro and local levels through seven systematic stages (Kumer Singh et al., 2008).

Overall, the planning and management outcomes in the study area, encompassing both normal and human sectors, indicate moderate sustainability. However, the current management trajectory risks pushing conditions towards instability if continued unchecked. Therefore, macro-level planning in this region requires a holistic and forward-thinking approach to steer the situation towards sustainability. To achieve sustainability in Yasuj, micro and macro goals have been established across the social, economic, cultural, conservation, and tourism sectors. These goals are realistic, achievable, and sustainable, aiming to enhance environmental indicators currently in unstable conditions. Salamatnia and Jozi applied the SWOT technique to develop a strategic management plan for Yasuj city, revealing that weakness and instability in management, poor advertisement, and inconsistency of the related organizations in

different developing areas and people are the main causes of the city's underdevelopment (Salamatnia & Jozi, 2021),

Drafting a vision statement is pivotal in the urban development strategy document. A systematic compilation of prospective statement text is derived from visioning processes, including working group meetings and public input to identify strengths, weaknesses, opportunities, and threats. Issues and problems are identified through questionnaires, and discussions are framed within scenarios derived from the AIDA model. Policies and executive plans are compiled by analyzing and selecting the most feasible scenarios.

Yasuj is a culturally rich city with high tourist potential, renowned traditions, vibrant music, and stunning natural landscapes. It serves as a significant cultural hub regionally, hosting institutions of regional importance. This capacity for stabilization and performance consolidation enhances Yasuj's regional prominence, enabling it to competitively position itself nationally. In the future, the city aims to benefit from scientific tourism facilitated by Yasuj University, hosting national and international scientific conferences. Yasuj aspires to become a premier regional service center in the service sector, leveraging specialized services such as advanced hospitals and recreational complexes.

The sustainable development approach in Yasuj's agricultural and horticultural sectors promotes green tourism, emphasizing nature-centric and eco-friendly practices alongside local partnerships. Tourism planning in Yasuj seeks to ensure local communities benefit from tourism revenues, fostering participation from civil society in tourism service provision.

Conflict of interest

The authors declare that there are no conflicts of interest regarding the publication of this paper.

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