MANZAR, 13(57), 22- 37 / Winter 2021
DOI: 10.22034/MANZAR.2021.283818.2128

Persian translation of this paper entitled:
تحلیل مفهوم منظر و رویکرد منظر از سطح نظری تا عرصه اجرایی: مرور ادبیات نظری
.is also published in this issue of journal

Original Research Article

Analyses of Landscape Concept and Landscape Approach from Theoretical to Operational Levels: A Review of Literature*

Mohammad Reza Masnavi
Professor of Architecture & Environmental Design, Graduate Faculty of Environment, University of Tehran, Iran.

Heshmatollah Motedayen
Assistant Professor of Architecture and Urban Landscape, Faculty of Fine Arts, University of Tehran, Tehran, Iran.

Parichehr Saboonchi**
Ph.D. Candidate in Landscape Architecture, Faculty of Fine Arts, University of Tehran, Iran.

Morteza Hemmati
Ph.D. Candidate in Landscape Architecture, Faculty of Fine Arts, University of Tehran, Iran.

Received: 28/04/2021 Accepted: 10/06/2021 Available online: 22/12/2021

Abstract | In recent years, the integration of the landscape approach with other approaches has attracted wide attention for its holistic view and new paradigms redefining the relation of man and environment. Yet there is no consensus over precise definitions for the landscape, and landscape approach to reflect their essence. The extensive theoretical literature on landscape definitions has caused ambiguities in understanding these terms and concept and made its application difficult. The purpose of this study is to explore the nature and different dimensions of the landscape approach by developing a conceptual model.

Based on the findings of this study, from theoretical perspective, landscape is an objective phenomenon, and objective-subjective whole, or a temporal-spatial phenomenon born through the interactions between nature and culture, and hence a complex system. Also, from a practical view point, it is the landscape approach that deals with a holistic view and the applied aspect of theoretical concepts. The systematic review of previous research shows that, this approach is based on three components: conceptual nature, principles and characteristics, and management processes. Its nature is composed of physical-semantic aspects and presents an interpretation of the conceptual framework of landscape in the human-environmental system. The principles and characteristics that emerge from this nature are holistic, multifunctional, multidisciplinary, interdisciplinary, participatory, dynamic (ecological-social), complex, place-based, and can involve multiple stakeholders. Also, integrated, adaptive, participatory, contextual, and resilient dimensions are the main features of the landscape approach at the management level, which lead to the guidelines for their applications through two processes: planning policy-making and decision-implementation. This approach is evaluated through monitoring and controlling and evolves into a cyclical and progressive process to expand.

Keywords | *Landscape concept review, Landscape approach, Landscape approach conceptual model, Theoretical perspective, Operational level.*

**Corresponding author: +989121903077, saboonchi.parich@ut.ac.ir

Introduction| Climate change, poverty, food security, inequality, and biodiversity loss are some of the most important challenges facing the contemporary world. The proposed solutions to these problems are mainly one-dimensional and do not address multilateral problems. However, today, the need of the international community to address integrated solutions through a comprehensive approach is apparent. So far, a wide range of sciences and disciplines have tried to create coordinated and comprehensive management. The landscape approach as one of these paradigms seeks to achieve sustainable development in areas such as nature protection, biodiversity conservation, integrated natural resource management, land use planning, ecosystems restoration, and climate change mitigations (Arts et al., 2017; Chia & Sufo, 2016), cultural heritage protection and urban management (Van Oers, 2015). Many scientific disciplines such as ecology, geography, economics, sociology, environmental sciences, planning, and management are interrelated with this approach. Yet, its wide applications, the definitions, terms, and tools for using this approach are still not fully adressed. Therefor a conceivable example of its implementation has rarely been identified; and its application in reality has been regarded challenging (Reed, Deakin & Sunderland, 2015; Reed, Van Vianen, Deakin, Barlow & Sunderland, 2016; Reed, Van Vianen, Barlow& Sunderland, 2017). Today, the landscape approach has been interpreted from different perspectives. However, some interpretations are in contrast with the basic concepts and components of landscape definitions. This study attempts to examine the concept of the landscape approach. For this purpose, the review focuses on the nature and different dimensions of this approach; investigates through a conceptual framework and scrutinizes implementation measures and instructions in the real world. This study attempts to answer the following questions: 1) What is the landscape approach in its essence and how is it different from the landscape concept? 2) What are the principles and characteristics of this approach and how its implementation processes are realized?

Materials and methods

This research employs a systematic analytical method to review the litearture. The main purpose is to understand the nature of the landscape approach through landscape concepts. Therefore, at first, the literature review was undertaken using vocabulary, terms, definitions and features in various sciences. The term *Approach* means to turn, to turn to something or someone, to take a position, to orient oneself towards a specific subject. It is a process that identifies the necessary steps in strategic and tactical decisions to achieve the goals of a system or field of knowledge (Weatherall, 1968). Like perspective, it specifies the angle of view of a phenomenon (Malekian, 2001)[1] and is characterized as a process-oriented phenomenon with a direction, perspective, and positioning. In examining the evolution and description of paradigms and schools of strategic planning, different theories are classified according to a set of principles in the form of different schools, then schools are classified in the form of approaches (Mintzberg, Lampel & Ahlstrand, 2018) (Fig. 1).

In the following section, the concept of landscape is presented from both theoretical and practical perspectives. The theoretical perspective reviews its evolution and examines the roots of its development in chronological order, and the practical perspective examines the perspective focusing on areas such as resource management, conservation and development,

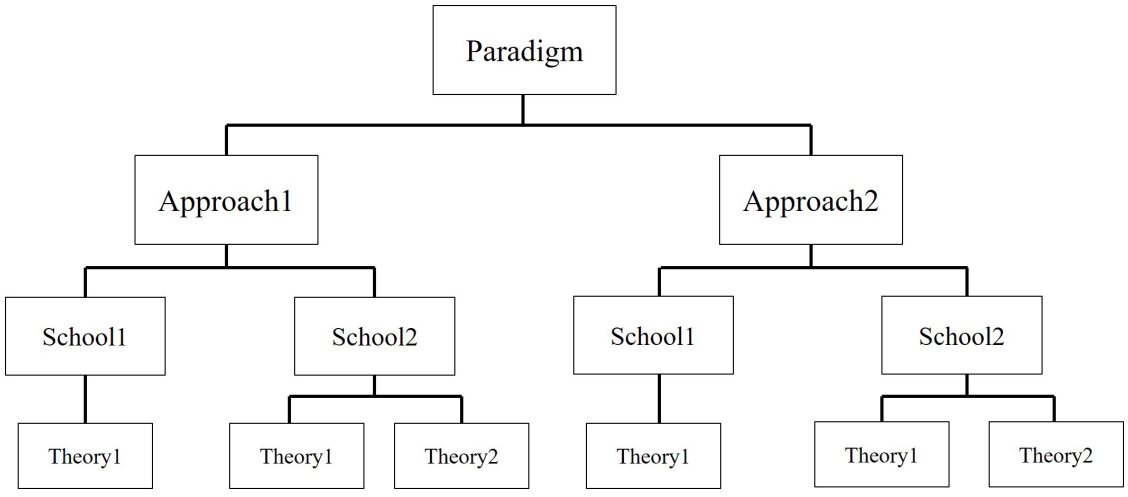

Fig. 1. A hierarchy model of paradigm-approach-school-theory. Source: Authors based on Mintzberg et al., 2018.

sustainability, ecosystem, and so on. The components of the landscape approach then were presented by deriving the common features and principles of this approach. Then, analytical articles and written sources were consulted, and a new classification of the process of landscape approach was presented.

Preliminary data were collected through a qualitative systematic review. To achieve this, the published mix-method studies, and gray literature sources (studies, reports, interviews, etc.) were included. The keywords for review included *approach*[2], *landscape*, and *landscape approach*. Using the keywords, we examined articles, books, scientific reports, and professional associations guidelines, official reports, interviews on scientific websites, and valid statements by international organizations. Then we reviewed related English articles and books published on databases of Elsevier, Willey, Springer, Science Direct, Scopus, and Web of Science between1884 and 2021. In the first phase, more than 580 written sources were extracted. Sources were to include a wide range of cultural, aesthetic, philosophical, and literary insights, but we were able to categorize them in the field of ecology and sustainable development. In the second phase, by determining the criteria for referring to the conceptual framework of landscape, the nature, attributes, the process of the landscape approach, and theoretical and practical steps, we selected a total of 169 articles as the main sources. In the third phase, we categorized the studies based on the dominant views, and finally, the intellectual foundations of both theoretical and practical views were inferred and developed. Based on the data from three phases, the analysis in the theoretical framework included the fundamentals and components of the concept of landscape through the lens of group of experts in five different disciplines. The classification was based on the frequency of keywords used in their statements. From a practical point of view, the studies related to the landscape approach were analyzed through content analysis. Then approach was introduced and interpreted as a three-phase process from the main theoretical concepts to the operational levels.

Literature review

Each epistemological field can be defined from two perspectives: a) theoretical, which focuses on the definitions, characteristics, and dimensions of that domain, and b) practical perspective, which focuses on the actions, operationalization, and functions of the definitions. Theoretical framework and practical methods are two sides of the same phenomenon (Mautz & Hussein, 1961). Conceptual frameworks are based on theoretical perspective, and the emergence of approaches depend on both theoretical and practical perspectives. This approach is a concept derived from a theoretical framework that is operationalized by determining the principles, steps, and procedures of solving a problem. In this section, the concept of landscape is examined from a theoretical and practical point of view through a systematic review of the opinions of experts.

• Landcape through the lens of theory

The concept of landscape in the current literature is considered to be referred to variety of meanings and terms namely, scenery, perspective, vista, point of view, image, etc. In general, the three concepts of "sensory-subjective", "scientific-interdisciplinary" and "transdisciplinary" form the main concepts of this field. *Landscape* emerged as a means for aesthetic and individualistic perception and representation of a part of the earth and nature (Alehashemi & Mansouri, 2017), for the first time in the 15th century (Berque, 2013 Collot, 2011;) when its physical dimension received much attention. This concept became popular simultaneously with gardening and urban planning in imaginary landscapes and used to express human feelings, ideas and beliefs emerged (Antrop, 2013). Philosophically, the landscape was associated with the separation of the subject from the object world in Descartes' philosophical duality, the development of perspective in art, the establishment of the principles of modern geometry, and the separation of representation from symbolism and subjectivism in the Renaissance (Berque, 1995). In the eighteenth century however, with the emergence of the industrial revolution and the scientific research methods, the concept of the landscape changed as implications of the various disciplines to discover the new world.

The beginning process of the landscape scientification goes back to the naturalistic explorations and systematic descriptions of Alexander von Humboldt (1769-1859) and Charles Darwin (1809-1882). In the field of geography, *Landscape* was defined as an interdisciplinary discipline and a comprehensive, phenomenon perceived by human beings (visual perception) in Alvin Opel's book entitled Landscape science in 1884 (Zonneveld, 1995; Farina, 2006; Troll, 1950; Oppel, 1884). Vidal (1818-1845) defined the term landscape as a unique aesthetic combination between natural and cultural features, a pattern of habitation, and social realms (Kolen, Renes & Bosma, 2017, 2017; Claval, 2004; Vance, 1929). He proposed this term using a literary and historical approach based on the data from fields, maps, literature, and designs. Later, the Royal Geographical Society of England in 1830 and the National Geographical Society of America in 1888 contributed to the term cultural landscape in 1890 (Jones, 2003). The American Association of Landscape Architects in 1899 emphasized

the importance of narratives and symbolic meanings in landscape perception[3], by merging landscape with philosophical approaches, (Tuan, 1974; Schama, 1995; Olwig, 2002; Lowenthal, 1975). The National Trust Foundation then passed laws in the UK in 1895 to protect monuments, nature, and heritage sites (Antrop, 2013). With the advent of aerial photography in 1939 and the discovery of archaeological features, historical geography, archeology and, landscape was formed[4] (Kolen et al., 2017). Technological advancement and the advent of computers and applications, modeling and quantification of information led to the emergence of landscape ecology in the 1980s whose aim was protecting the environment[5] (Reed et al., 2015). Launching the International Society for Landscape Ecology in 1988 promoted systems theory and dynamics (Forman & Godron, 1986; Naveh & Lieberman, 2013). Emphasizing the relationship between spatial patterns and environmental processes, landscape ecologists proposed three main perspectives on landscape and ecology: 1) Landscape like a mosaic consisting of ecological units, forming a matrix and edges (Forman & Godron, 1981-1986; Forman, 1995a); 2) scrutiny and emphasis on the mental, temporal, spatial and natural dimensions of the landscape as a complex system (Tress & Tress, 2001); 3), multifunctional perspective as an interactive and tangible natural-cultural system (Naveh, 2001).

The link between landscape and social and cultural characteristics in the first assessment of the European Environment Organization led to the interdisciplinary nature of landscape discipline (EEA, 1995). The first formal definitions of the term landscape were proposed by the UNESCO World Heritage Convention in 1992 and later by the European Landscape Convention in 2000 (Rossler, 2006). Based on this, "landscape is an area as perceived by people whose character is the result of the action and interaction of natural and/or human factors" (Council of Europe, 2000, Luzenbul, 2014; Arts et al., 2017). Today, the concept of landscape, with its emphasis on public landscapes, encourages research into issues of landscape perception, participatory processes, community-based, and promotes the creation of practical solutions rather than theoretical and academic concepts (Antrop, 2013) (Fig. 2).

Today, several definitions for landscape have been proposed by Iranian and foreign experts. The emphasis on a particular aspect or component has distinguished definitions from each other and has led to disagreement over an integrated concept (Tress &Tress, 2001). A systematic review of these views reveals[6] main components contributing to the nature and definition of landscape (Table 1).

• Landscape through practice (landscape approach)

After proposing formal definitions, practical landscape perspectives were presented in the form of integrated landscape management whose aim is promoting sustainable development, integration of socio-economic development while preserving biodiversity, and reducing climate change (Kozar et al., 2014). The explanation of the landscape approach and its principles

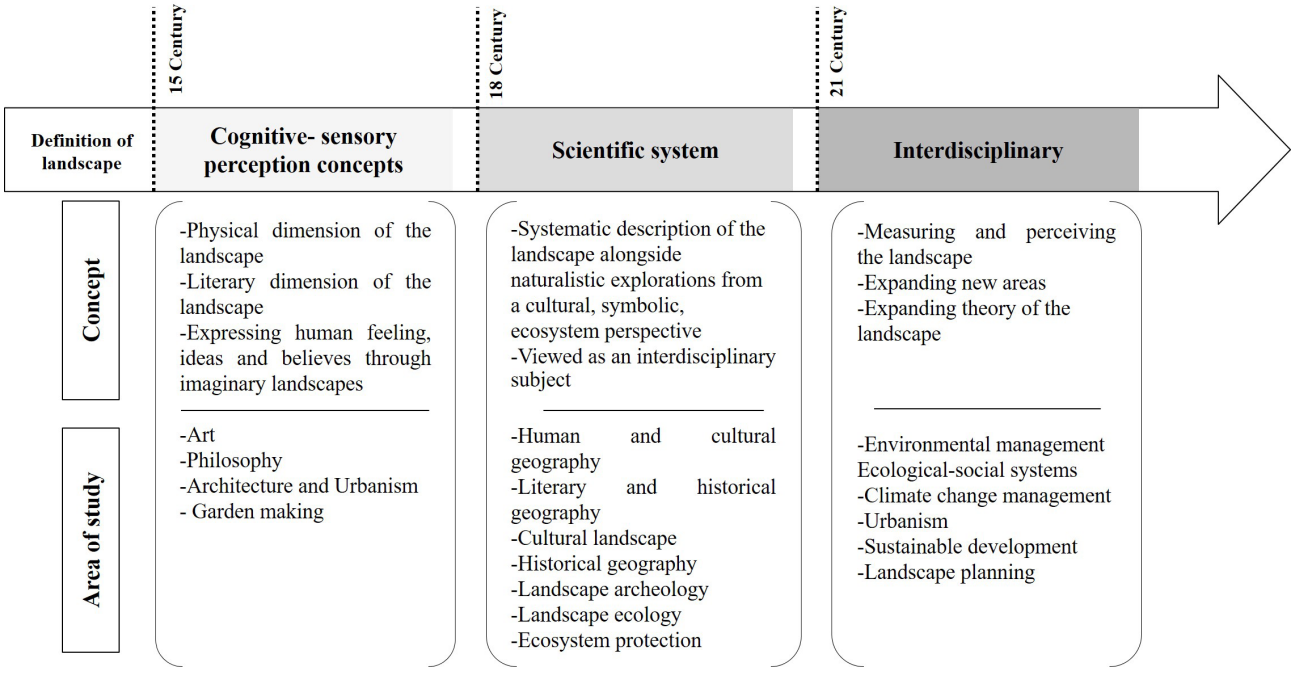

Fig. 2. The evolution of the concept of landscape and areas of influence after the 15th century. Source: Authors.

Table 1. A classification of the fundamentals and constituent components of the concept of landscape in the views of landscape professionals and thinkers. Source: Authors.

Landscape as a foundation ...	Aspects emphasized	Scholars
objectives	Attention to the visual and physical aspects of the environment within the range of human perceptions Landscape as a visible exterior space The importance of the earth element (part of the surrounding earth)	Haber, 2004 Hartshorne, 1939 Ervin Zube, Line Han and Gross (cited by Mahan and Mansouri, 2017) Khorasanizadeh, 2003 Zekavat, 2006
objective-subjective whole	The importance of objective facts and mental perception of viewers in the form of a single whole Continuous phenomenon and inseparable objects from subjects Affected by human forces: life, perception, and imaginations Having three emotional, cultural, and ecological dimensions Different ways of perceiving the landscape from the point of view of each viewer (relativity of the landscape)	Cosgrove, 1992 Daniels, 1989 Herring, 2009 Meinig, 1979 Pearson and Gorman, 2010 Tuan, 1979 Turner, 2006 Kutter and Westby, 2014 Berque, 2013 Donadieu, 2013 Habib, 2006 Norberg – Shulz, 2003 Sheybani, 2010 Golkar, 2008 Mansouri, 2005 Mansouri,2010 Bell, 2003
temporal-spatial	Landscape as a system consisting time intervals and spatial limits Dynamics of landscape and changes over time in the physical context of the environment and the dynamics of the mind of viewers Landscape as a type of the place in relation to the subject, the perceived place Landscape as the product of human experience of the environment	Fairclough, 2006 Masnavi, 2013 Risser, 1987 Samuels, 1979 Zonneveld, 1990
interaction between nature and culture	landscape as a medium for shaping a whole including cultural and natural components (semiotics) Preservation of landscape identity through ecological infrastructure, natural processes, cultural and historical features The relationship between natural and cultural patterns, its constituent processes and human perception of the beauty of this collection	Bakhtin, 1986 Brown et al., 2005 Dabiri & Masnavi, 2015 Duncan and Ducan, 2009 Lewis, 1979 Makhzoumi, 2015 Masnavi, 2013 Schama, 1995 Simmel, 2007 Cosgrove, 2003 Walter and Hamilton, 2014 Taghvaei, 2004 Simmons((cited by Taghvaei, 2012) Shaheer, 2013 Motalebi, 2006 McHarg, 1992
Complex system	A set of processes of natural and man-made patterns with reciprocal communication A whole unit of physical, ecological and geographical features The nature of a complete system, landscape sustainability in the form of restoration of natural processes and perfection to nature The complexity of the landscape in the complexity of the ecological layers Manifestation of changing processes in nature Recurring interactive ecosystems Geographical and biological subsystems (geological processes, natural landscape form and its natural patterns)	Bormann, 1987 Forman and Godron, 1986 Forman, 1995b Ingold, 2000 Masnavi, 2013 Masnavi, Gharai & Hajibandeh, 2019 Naveh and Lieberman, 2013 Wiens and Milne, 1989 Wu, 2002 Aminzadeh, 2016 Gharai & Masnavi & Hajibandeh, 2018 Masnavi and Soltanifard, 2006 Masnavi, 2010 Masnavi,2011

dates back to the 1990s, but its roots go back to the 1970s when the international community became increasingly concerned about environmental issues (Holling, 1978; Walters, 1986; Light, 2001). Presenting the models limiting human intervention in nature and the use of multifunctional landscapes were also influenced by the emergence of landscape ecology and conservation and development management models in the 1980s, as well as the reports of the World Wildlife Fund and Brundtland in 1987 (Saxena, Rao, Sen, Maikhuri & Semwal, 2001; Tress, Tress, Décamps & Hauteserre, 2001; Scherr, Shames & Friedman, 2012; Harvey et al., 2014). During this period, the protection of natural resources and the development of rural areas were considered by non-governmental organizations.

Emphasizing the integrated management, theoretician and international associations sought to find management approaches and landscape design (Milder et al., 2012; Sayer et al., 2013). In the field of cultural heritage protection, the landscape approach has emerged through the integration of scientific and humanistic approaches (Tress et al., 2001; Fairclough & Londen, 2010) that focus on the interaction between landscape-related communities (ICOMOS, 1999; Mason & Avrami, 2002) to produce environmental, economic, social, cultural, and political values (Arts et al., 2017). While the landscape approach was based on conservation theory, its development did not require understanding the landscape preferences of viewers (Lawrence, 2011). Therefore, the landscape approach was proposed as an alternative method for land-use adaptation (Sayer et al., 2015), and the implementation of socio-economic-environmental goals in the 90s (Denier et al., 2015; Wu & Hobbs, 2007) was based on the principle of partnership, that is the joint efforts of researchers, stakeholders, beneficiaries and policymakers in bottom-up management projects and actions to promote sustainable development and local sustainability (Axelsson, Angelstam, Elbakidze, Stryamets & Johansson, 2011; Sayer et al., 2013-2015; Folke, 2006). In recent years, this approach has been used to change climate policies (DeFries & Rosenschweig, 2010). The generalization of the landscape approach to urban planning issues has paved the way for the phenomenon of landscape urbanism in which the priority is given to environmental processes, the role of man in the urban landscape, and aesthetic developments (Dabiri & Masnavi, 2015; De Block, 2016).

Criteria for the landscape approach were defined based on the concepts of space-place, infrastructure, sustainable development, process and states, and the procedure of sustainability (Angelstam et al., 2019) and this approach is known as a social innovation involving social relationships and structures and viewers' subjectivity (Council of Europe, 2000). The landscape approach depends on the analysis of environmental interactions along with the study of social dimensions based on the understanding of culture (Denevan, 1992; Dunning et al., 1999; Thurston, 1999; Feinman, 1999; Abarghouei Fard & Saboonchi, 2020). Holism, physical-mental dimensions, Integration of social, cultural, environmental and ... layers (Saboonchi & Abarghouei Fard & Motedayen, 2018; Spirn, 1998; Tress and Tress 2001; Saboonchi, 2021), and economic dynamics are the principles of the landscape approach that accept adaptive management, diversity of solutions, actors, and institutions (Saboonchi & Abarghouei Fard, 2020; Berkes, 2009; Gupta et al., 2010; Koffi et al., 2016). The landscape approach is integrated and creates compatibility between stakeholders and land use, especially in the field of conservation and economic development (Folke, Hahn, Olsson & Norberg, 2005; Harvey et al., 2008; Sayer et al., 2013; Reed et al., 2016) while increasing stakeholder capacity, it seeks awareness, monitoring, and evaluation through negotiations (Sayer & Maginnis, 2005; Lebel et al., 2006; Balint, Stewart, Desai & Walters, 2011; Fakuda-Parr & Lopes, 2013; Virji, Padgham & Seipt, 2012; Clark, Van Kerkhoff, Lebel & Gallopin, 2016). Due to its dynamic nature, this approach is a constantly changing and unpredictable phenomenon and requires forward-looking preconditions (Naveh, 2001). However, adopting such a comprehensive approach to planning and policy-making faces many challenges and requires an appropriate combination of complementary or synergistic tools (Gunningham & Sinclair, 1999; Borrás & Edquist, 2013; Bastos Lima, Visseren-Hamakers, Josefina Braña-Varela & Gupta, 2017).

The review of recent literature on the landscape defivitions indicates that it has moved towards more practicality and applicability through a series of theoretical discussions and conceptual definitions. The practical aspect of the landscape was initially focused on a set of partial approaches at the micro-scale, but with the evolution and development of theories, it has become integrated and overseeing the whole on a large scale (Freeman, Duguma & Minang, 2015). Today, the landscape approach is achievable in the operational dimension and planning to achieve multiple landscape goals. Accordingly, landscape is seen as an evolving theoretical concept, and the landscape approach seeks for more effective and practicable definitions for the term *landscape* in the real world. Landscape definitions expanded the philosophy of landscape and the landscape approach using this philosophy and its various aspects, introduces new dimensions to sort out problems. In the following section, the statements of experts regarding

the landscape approach are systematically reviewed and a summary of these statements examines the landscape approach from the three areas of nature, principles, characteristics, and implementation instructions.

- Nature of landscape approach

landscape approach is a tool for interpreting the meaning of the environment in relation to its physical entity from the audience point of view, and as Cosgrove (1984) states, "landscape is not merely the world we see, but a structure, a perception of that world and a way to see the whole world." The landscape approach has a common nature with the landscape. The nature of the landscape approach is defined in a human-environmental system and to balance the social interests of people and the environment, it tries to make this approach more realistic by presenting principles at the macro-level (Sayer et al., 2013) (Fig. 3). Diverse specialties and areas such as ecology, conservation and biodiversity of ecosystems, sustainability, philosophy, social sciences, psychology, complex systems science, and urban and architectural areas can benefit from it, although in the specialized literature of this approach, the issues of management and operational planning have been reduced (Johnston, Meija & Vogel, 2017).

- Principles and features

The principles of the landscape approach through the lens of scholars are expressed in the characteristics based on the main components of the landscape phenomenon (human, environment, and the relationship between man and environment) and a set of plans, macro-management policies that are introduced to put theoretical concepts into practice. It considers the characteristics, multifaceted concepts, and basic principles of landscape and describes the general characteristics of landscape concepts and their attributes, while programs and policies try to create practical patterns and approaches and problem-solving techniques (Table 2).

- Implementation guidelines

One of the challenges of implementing the landscape approach is that experts tend to remain at the level of theoretical concepts and conceptual frameworks (Duff et al., 2009; Pressey & Bottrill, 2009). Among these, processes (based on ecological principles) proposed to implement the landscape approach include the description of the project's site and landscape context, analysis of existing features and functions, the use of ecosystem-based approach, and inclusion of humans as an element of the ecosystem, and monitoring environmental functions (Lovell & Johnston, 2009). In another guideline, based on the interaction between experts and researchers, requirements for implementing the landscape approach contain four main pillars namely understanding landscape performance, discovering social needs and environmental changes, designing future landscapes, and turning negotiations into effective interventions (Burgi et al., 2017). Executive measures can be the awareness of integrated landscape management and assessment among local governments and the private sectors and civil society actors, monitoring and evaluation, organizational actions and legal means of protection, the agreement between stakeholder interests

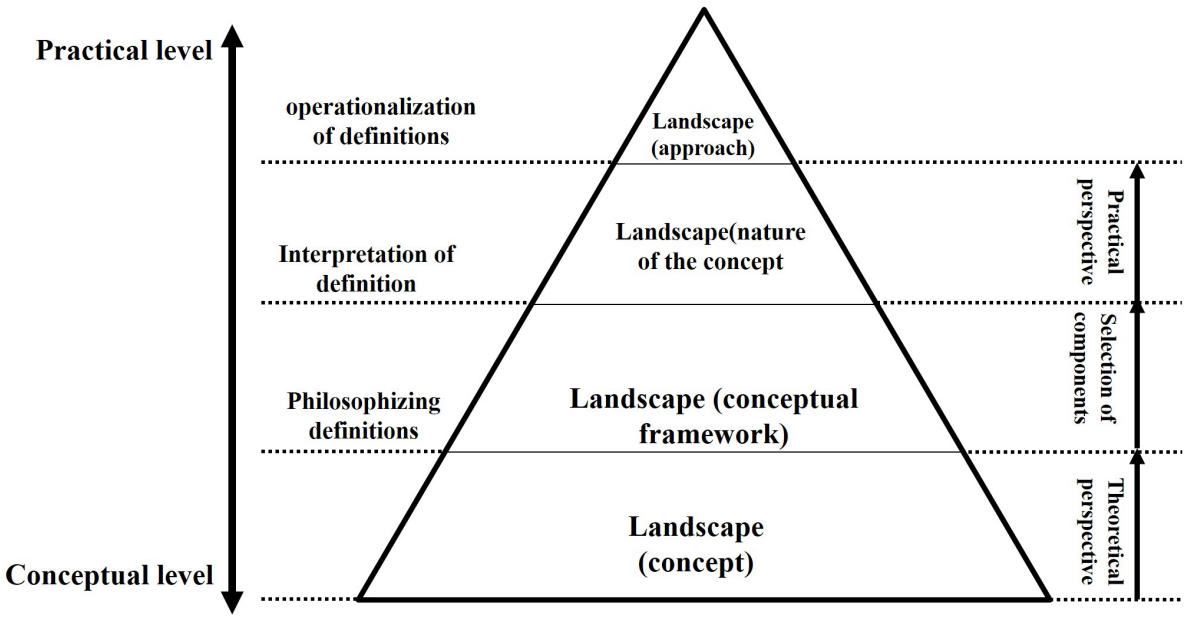

Fig. 3. Landscape approach resulting from the implementation of the landscape conceptual framework. Source: Authors.

Table 2. Extracting and explaining the principles of landscape approach through the lens of foreign scholars. Source: Authors, 2021.

Researchers and theorists	Stated principles
Axelsson et al., 2011 Implementation of the landscape approach with five main features	1. Adapting large areas to management needs and challenges 2. Multi-level and multi-sectoral cooperation of stakeholders 3. Understanding sustainability and commitment to it 4. Integrated knowledge production 5. Sharing experiences, results, and information to develop local knowledge
Sayer et al., 2013 Ten Principles of Landscape Approach for Adaptation of Agriculture, Conservation and Land Use (used by Gray, Henninger, Reij, Winterbottom & Agostini, 2016) in the integrated landscape approach for Africa's dryland	1. Continuous learning and adaptive management 2. Common concern for getting into the issue 3. Multiple scales 4. Multi-functionality 5. Multiple stakeholders 6. Participatory monitoring 7. Negotiation and clear logic of change 8. Clarification of rights and responsibilities 9. Resilience 10. Strengthening the capacity of stakeholders
Milder, Hart, Dobie, Minai& Zaleski, 2014 An investigation of 87 case studies and introduction of an integrated landscape approach as a project, program, or set of actions.	1. Improving food production, biodiversity, or ecosystem conservation (multifunctionality) 2. Planning, managing, and supporting activities (landscape scale) 3. Coordination between activities, policies, or investments at the level of governmental and non-governmental organizations (being interdisciplinary) 4. Adaptive management and collaboration in the context of social learning (participation)
Ros-Tonen, Derkyi & Insaidoo, 2014; Foli, Ros-Tonen, Reed & Sunderland, 2018 Principles of the landscape approach for analyzing natural resource management plans	1. Integrated approach 2. Adaptive management and continuous learning 3. Multicenter rule 4. Negotiation of multiple stakeholders 5. Capacity building
Freeman et al., 2015 A review of 43 articles and presentation of conceptual framework and principles and guidelines in theoretical-descriptive literature from a socio-ecological aspect	1. Multipurpose 2. Interdisciplinary or interdisciplinary 3. Stability 4. Participation 5. Complexity
Reed et al., 2016 A review of 13,000 articles, 500 written documents, websites of 30 research organizations, and introduction of five key aspects of the landscape approach.	1. Evaluation and monitoring 2. Development of management structures 3. Solutions appropriate to the goals and context 4. Stakeholder participation and negotiations 5. Dynamic processes for random and unpredictable changes
International Wetlands Conservation Organization (CARE and WI, 2017) Seven Steps in utilizing a landscape approach to reduce disaster risk	1. Preliminary assessment of risky landscapes 2. In-depth analysis of stakeholders 3. Having multiple stakeholders and allying with them 4. Participate to analyze the problem and the solution in-depth 5. Participatory-practical planning 6. Participatory implementation 7. Promoting adaptive management
Scheyvens et al., 2017 Utilizing the principles of the landscape approach to protect, enhance and develop the ecosystem and its services in Asia and the Pacific	1. Based on ecosystem 2. Multiple geographical scales 3. Multipurpose 4. Resilience 5. Participatory process 6. Using knowledge and its continuous production 7. Adaptive management
Arts et al., 2017 Landscape as a border concept and has 7 convergent features	1. Based on location 2. Multipurpose 3. Stability 4. Participation 5. Engage with the community 6. Joint planning 7. Interdisciplinary

and land use, access to spatial information and resources, financial benefits and ... (Gray et al., 2016; Pfund, 2010) Benefits of operationalizing the landscape approach include cost reduction (Molin, Chazdon, Ferraz & Brancalion, 2018), shifting sectoral and project-oriented activities to process-oriented activities (Sayer & Wells, 2004), and adopting long-term plans instead of quick-return and small-scale plans. In common approaches, decisions made in one section have not considered the results in other sections, but the landscape approach, instead of imagining an endpoint for the project, considers it as an iterative process of negotiations, testing, and compliance. Accordingly, the landscape approach in practice includes three steps of preparation, planning, and evaluation (Lei, Pan & Lin, 2016).

The challenges of implementing the landscape approach include the lack of effective political structures and government decisions, lack of social capital, lack of strong leadership (Pretty, 2002-2003; German et al., 2007; Vander Velde, 2014), weak organizational support, lack of capacity, or financial resources, unequal shares of benefits (Ostrom, 1999), and inability to attract resources and elites. The landscape approach desperately requires sufficient resources, full stakeholder participation, and long-term flexible programs for dynamic social and environmental landscape projects (Sayer et al., 2013-2017; Mansourian et al., 2020; Sandler et al., 2010). Collaborative models help to better understand complex systems, improve stakeholder communication, and appreciate common problems better (Rouwette, Vennix & Van Mullekom, 2002; Lynam, Jong, Sheil, Kusumanto & Evans, 2007; Bousquet et al., 2007; Castella, Kam, Quang, Verburg & Hoanh, 2007). Therefore, community interaction, institutional support, and the principles of good governance are three important factors in implementing the landscape approach (Reed & Sunderland, 2016).

Discussion

The difference between the concept of landscape and the landscape approach lies in theoretical and practical perspectives. Landscape is a phenomenon resulting from the interaction between man and the environment in a temporal-spatial context. However, the landscape approach is based on the conceptual framework of the landscape and it deals with making processes and practical strategies, methods and techniques of analysis, and management.

• Landscape from a theoretical perspective

Based on the systematic review of landscape literature, this study argues the reason for disagreement over a single definition and different perceptions of landscape (as an objective, objective-subjective, temporal-spatial, cultural-natural, and systemic phenomenon) that is associated with philosophical debates in each discipline, the context of its development; the concept of the viewer, and the concept of environment in the landscape. The differences in points of view will be a determining factor in explaining the principles and characteristics of the landscape approach.

Scope of definition: The term landscape refers to an objective matter and is limited to sensations (as of surroundings, natural environment, geographical location, plots of land) or it is a matter dealing with human perceptions and minds, culture, history, and society.

Context of development: landscape as nature and ecological context containing natural-human elements or living and non-living organs; or landscape as a relative concept of the environment including the material and immaterial environment.

Concept of viewers: landscape perception depends on the individual's perception of the environment or emphasizing the perception of society and social and cultural currents

Status of viewers: Emphasizing the role of man, his activities, and the way he intervenes in the environment when it comes to the material dimension (the viewer like other elements of ecosystems) and the dynamics of the landscape means that the environment is static or emphasizing the physical and mental existence of human beings simultaneously and the non-appearance of the landscape without human perceptions and the dynamics of the landscape depend on the dynamics of the environment and the human mind.

Type of relationship between man and the environment:

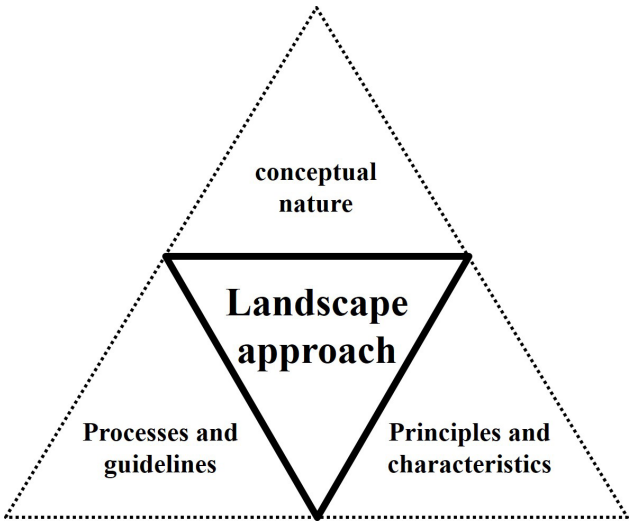

Fig. 4. Landscape approach and its three components.
Source: Authors.

the landscape refers to a whole and a new product composed of the relationship between man and the environment (continuous communication) or it is something simply to say discrete communication, the sum of man and the environment(Hemmati & Saboonchi, 2021).

Summarizing and synthesizing the findings in the landscape approach: From a practical point of view, lack of consensus and different interpretations of the concept of the landscape have made different the nature of the landscape approach quite tricky. Therefore, there is no single landscape approach with a fixed concept and different principles and actions are presented based on different frameworks. Accepting pluralism for greater flexibility and adaptability can help to better define the approach and identify its elements (Johnston, 2017). Based on the findings of this study, the landscape approach is a three-part structure consisting of 1) conceptual nature, 2) principles and characteristics, 3) process and guidelines (Fig. 4).

- Conceptual nature

Landscape is a theoretical concept in evolution and the landscape approach is a concept derived from the definitions of landscape theory. The approach explains the relationship between man and the environment. By taking advantage of this philosophy and its various aspects, the landscape approach introduces new dimensions to solving problems. Thus, the landscape approach derives its nature from the commonalities and differences of definitions in the areas of context, the concept of viewers, the scale and scope of the intervention, and the resources available in the environment. This nature depends on the definition of the intervener from the landscape.

- Principles and characteristics

With the introduction of the landscape approach to natural-human systems and its evaluation and identification, various features of the human relationship with the environment are revealed. The recurrence of these characteristics will lead to the extraction of the principles of the landscape approach. According to Table 2, the principles defined by scholars for the landscape approach are a combination of their characteristics and strategies. Some of the principles are specific and some are political and strategic, and this lack of classification has caused confusion in examining the principles of this approach. The findings of this study indicate that the features presented in Table 2 consider the multifaceted concepts and basic principles of the landscape approach and describe the general characteristics of the landscape concepts and their attributes, while policies and strategies rely on the principles of sustainable development and try to create a model and monitor problem-solving techniques. By separating and classifying the opinions of scholars, the most important features of the landscape approach can be considered as holistic, multi-functional, multi-scale, having multiple stakeholders, interdisciplinary, participatory, dynamic, complex, and location-based. The other items listed in Table 2 are planning and strategies (intermediatory process) appropriate to these characteristics.

- Process and guidelines

Based on previous studies on the implementation of the landscape approach and the challenges of its advancement, the operationalization of the landscape approach can occur through two processes: 1) planning-policy-making (mediation process) and 2) decision-implementation.

Planning-policy-making is a multifunctional process aimed at achieving multiple landscape goals in a temporal-spatial context with the integration of social, environmental, and economic aspects in the form of integrated management from micro to macro scale. The importance of collaborative association as well as efforts to increase community awareness and capacity has been increased due to the lack of researchers and professionals engaging in multidisciplinary approaches and the limitations of using the landscape approach in a particular area of specialty (Reed et al., 2016). At the same time, the expression of common principles by scholars does not mean providing a consistent and comprehensive version for solving complex challenges and setting policies (Gray et al., 2016), and specific measures are required in various fields. Therefore, policy-making based on the landscape approach requires a comprehensive vision, taking into account the needs of stakeholders through negotiations to increase capitals, active participation of communities. This can occur by defining a supervisory role for them, context-oriented management, creating sufficient capacity to adapt and adapt to different conditions and future planning. These points indicate the complexity and versatility of the landscape approach.

2) decision-implementation process includes practical actions and implementation guidelines that lead to the advancement and operationalization of the goals of the landscape. Adherence to a single definition of planning (Johnston, 2017) starts from the conceptual aspect and moves to implementation of guidelines, organizational support, integrated management and planning, resource provision, utilization of expertise, performance analysis, and, of course, acceptance of landscape dynamics to adopt long-term strategies. They are a landscape approach. This approach requires a vision of the outputs and validation of the intervening actors in systemic change (Sunderl, Ehringhaus & Campbell, 2007) and it

includes evaluation, monitoring, and control to develop the initial conceptual frameworks and develop better guidelines after the implementation of the landscape approach (Fig. 5).

Conclusion

Given the wide range within which the conceptual landscape fall, it is difficult to provide a singular, and common definition for this concept. The landscape approach can be expressed in different ways, based on the influence of landscape and the degree of emphasis on each of the human components, the environment, and the relationship between the two. At the same time, commonalities between different approaches can be established. The landscape approach is a practical framework and process that helps to advance management and adopt better programs and policies based on landscape concepts and various aspects of human-environmental systems. This approach can be considered as a tool for macro-scale development goals in which environmental-human data is gradually transformed into concepts, principles, programs and policies, practical actions, and guidelines. The landscape approach is the applied aspect of the definitions of landscape theory, which includes three components of conceptual nature, principles and characteristics, and the management process:

- Its conceptual nature is the outcome of identifying and evaluating human information, environment, the interaction between the two, and it is derived from the definitions of landscape theory, the scope and range of its application and generalizability can be dealt with multiple goals.
- Its characteristics and principles are holistic, multifunctional, multiscale, interdisciplinary, participatory, dynamic (ecological-social), complexity, and location-sensitive, which affects the management process and involve multiple stakeholders.
- In the management process, a set of strategies and programs are adopted based on the principles and characteristics of the landscape approach, such as integrated, adaptive, participatory, contextual, and resilient management and planning. They are implemented in the form of written instructions and/or practicable guidelines.

Although different definitions of the term landscape have raised theoretical controversy, those differences in view points can lead to the development and refinement of the landscape approach; after the implementation process through incessant analysis of performance and monitoring , it can provide solutions tailored to the challenges in the context, content and can address the needs of communities. This issue requires interactions between the both experts and researchers and needs the integration of ideas and solutions in the form of long-term processes.

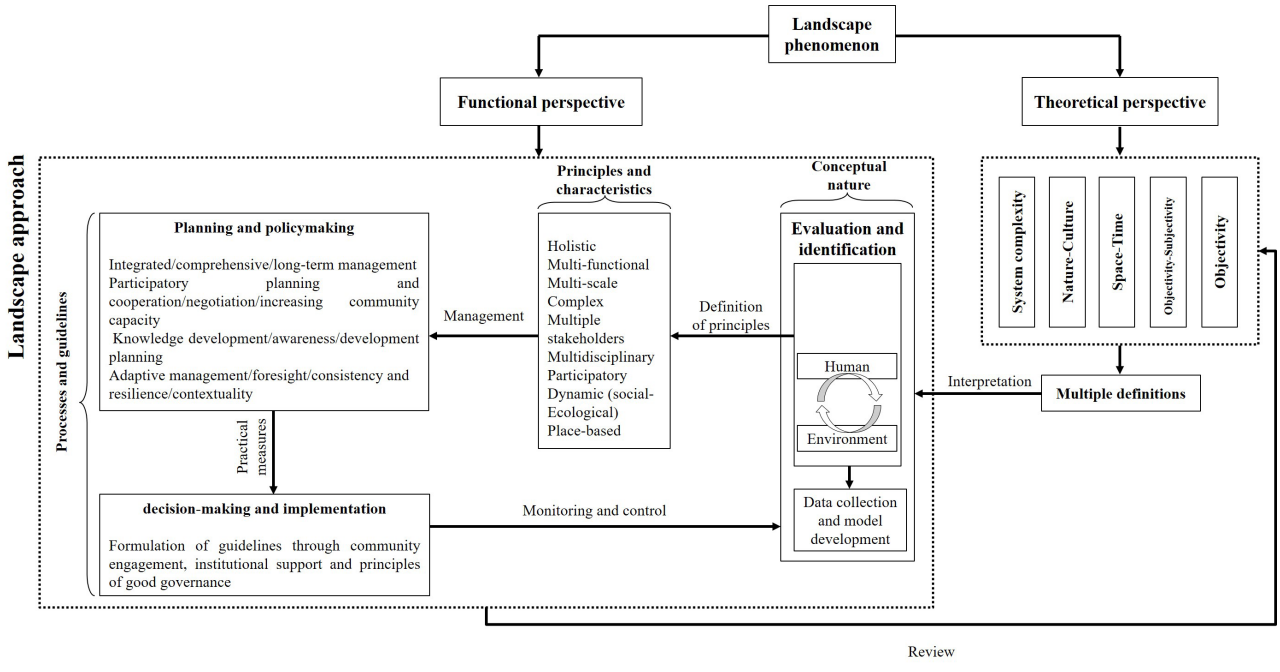

Fig. 5. Analytical process and categorization of landscape concept and landscape lpproach from theoretical to operational level, and the interrelations of their components. Source: Authors.

Endnote

* This paper is derived from Ph.D. Thesis of Parichehr Saboonchi entitled "Integration of city landscape and natural infrastructures with emphasis on nature-based solutions (NBS) for natural disasters risk reduction, the case of Tehran city" and supervised by Mohammad Reza Masnavi and Heshmatollah Motedayen at University of Tehran.

1. Perspective has three meanings: point of view, view of the problem from an individual and collective point of view, and view of the problem from a practical and theoretical perspective, ie the difference of view in terms of being pragmatic and realistic (Malekian, 2001).

2. Searched terms in explaining the theoretical concept of landscape: Landscape, Regional* AND Urban* AND Ecological* landscape, Terminology* AND History* AND Definition* Literature Review* of Landscape, Landscape AND Sustainability* AND Sociology* AND Geology* AND Philosophy* AND Ecology* AND History*, Landscape Architecture* AND Concept* AND Meaning*.
Searches terms in explaining the landscape approach: Landscape Approach*, Holism AND landscape* AND Approach, Integrated* AND Landscape* AND Management, Ecosystem* Service* AND Landscape* AND Approach, History* AND * Review* AND Principle* AND Barriers* AND Conceptual Frameworks* AND Implementation* of Landscape* AND Approach.

3. At this time, the cultural landscape gained a great deal of dominance compared to ecological concepts. Geographer Hartsohorn considered landscape to be limited, confusing, and superfluous; In his view, the concepts of zone and space were more appropriate options (Hartshorne, 1939).

4. This issue became more prevalent in Britain and Ireland. The construction of English landscapes for the protection of nature was a turning point in the history of landscape (Hoskins, 1955).

5. European schools and North American schools, each separately and with a different perspective, developed the discipline of the landscape. European schools took a holistic approach and anthropological perspectives, focusing on the concept of landscape planning, while American schools more analytically (Wu and Hobbs, 2002; Turner, 2005) focused on biological processes, such as dynamics of spots, environmental and population corridors (1995).

6. Bernard Lassos, Yves Luzmbol, Jan Nosom, and Augustine Burke defined landscape as a continuous phenomenon whose objective and mental aspects are inseparable. The definitions of these theorists are the basis of the definition of the European Union from the perspective (Mahan & Mansouri, 2017).

7. Such as international conservation organizations, the International Union for Conservation of Nature, such as integrated water resources management or integrated watershed management; Ecosystem approach; Integrated rural development; Integrated natural resource management; Integrated conservation and development projects; and forest landscape reconstruction.

Reference list

• Abarghouei Fard, H. & Saboonchi, P. (2020). Landscape as Symbolic Nature; Contemplation of the Representative Role of Natural Elements in the Formation of the Landscape of Kamu Village. *MANZAR*, 12(52), 28-37.

• Alehashemi, A. & Mansouri, S. (2018). Landscape; a Shifting Concept; The Evolution of the Concept of Landscape from Renaissance. *Bagh-e Nazar,* 14(57), 33-44.

• Aminzadeh, B. (2016). *Values in urban landscape design*. Tehran: University of Tehran.

• Angelstam, P., Elbakidze, M., Axelsson, R., Khoroshev, A., Pedroli, B., Tysiachniouk, M., & Zabubenin, E. (2019). Model forests in Russia as landscape approach: Demonstration projects or initiatives for learning towards sustainable forest management? *Forest Policy and Economics,* (101), 96-110.

• Antrop. M. (2013). *The Routledge Companion to Landscape Studies: A brief story of landscape research*. NY : Routledge.

• Arts, B., Buizer, M., Horlings, L., Ingram, V., Van Oosten, C. & Opdam, P. (2017). Landscape approaches: a state-of-the-art review. *Annual Review of Environment and Resources*, (42), 439-463.

• Axelsson, R., Angelstam, P., Elbakidze, M., Stryamets, N. & Johansson, K. (2011). Sustainable development and sustainability: Landscape approach as a practical interpretation of principles and implementation concepts. *J. Landscape Ecol.*, 4(3), 5-30.

• Bakhtin, M. (1986). *The dialectic imagination*. Austin: University of Texas.

• Balint, P. J., Stewart, R. E., Desai, A. & Walters, L. C. (2011). Wicked *environmental problems: managing uncertainty and conflict.* Washington/Covelo/London: Island Press.

• Bastos Lima, M. G., Visseren-Hamakers I. J., Josefina Braña-Varela, J. & Gupta, A. (2017). A reality checke on the landscape approach to REDD+: Lessons from Latin America. *Forest Policy and Economics*, (78), 10-20.

• Bell, S. (2003). *Landscape: patterh, perception, and process*. Tehran: University of Tehran.

• Berkes, F. (2009). Evolution of co-management: role of knowledge generation, bridging organizations and social learning. *J Environ Manage*, (90), 1692–1702

• Berque, A. (1995). *Les Raisons du paysage, de la chine aintique aux environements de synthèse*. Paris: Hazan.

• Berque, A. (2013). Is the Word "landscape" Changing There? *MANZAR*, 5(23), 25-27.

• Berque, A. (2013). *Thinking through Landscape* (A. M. Feenberg-Dibon, Trans.). NY: Routledge.

• Bormann, F. H. (1987). Landscape ecology and air pollution. In M. Goigel Turner (ed.), *Landscape heterogeneity and disturbance*, NY: Springer-Verlag.

• Borrás, S. & Edquist, C. (2013). The choice of innovation policy instruments. *Technol. Forecast. Soc. Chang*, 80(8), 1513–1522.

• Bousquet, F., Castella, J., Trébuil, G., Barnaud, C., Boissau, S. & Kam, S. (2007). Using multi-agent systems in a companion modeling approach for agroecosystem management in Southeast Asia. *Outlook on Agriculture*, 36(1), 57–62.

• Brown, J., Mitchell, N. & Beresford, M. (2005). *The Protected Landscape Approach: Linking Nature, Culture and Community*. UK: IUCN.

• Burgi, M., Ali, P., Chowdhury, A., Heinimann, A., Hett, C., Kienast, F., Mondal, M. K., Upreti B. R. & Verburg, P. H. (2017). Integrated Landscape Approach: Closing the Gap between Theory and Application. *Sustainability*, 9(8), 1371.

• CARE, W. I. (2017). *A Landscape Approach for Disaster Risk Reduction in 7 Steps*. Retrieved from https://www.wetlands.org/publications/landscape-approach-disaster-risk-reduction-7-steps/

• Castella, J. C., Kam, S., Quang, D., Verburg, P. & Hoanh, C. (2007). Combing topdown and bottom-up modelling approaches of land use /cover change to support public policies: application to sustainable management of natural resources in Northern Vietnam. *Land Use Policy*, 24(3), 531–545.

• Chia, E. L. & Sufo, R. K. (2016). A situational analysis of Cameroon's

Technical Operation Units (TOUs) in the context of the landscape approach: critical issues and perspectives. *Environ Dev Sustain*, (18), 951–964.
• Clark, W. C., Van Kerkhoff, L., Lebel, L. & Gallopin, G. C. (2016). Crafting usable knowledge for sustainable development. *PNAS*, 113(17), 4570–4578.
• Claval, P. L. (2004). The languages of rural landscapes. In Palang, H., Sooväli, H., Antrop, M. & Setten, S. (eds.), *European Rural Landscapes: Persistence and Change in a Globalising Environment*. Dordrecht: Kluwer Academic.
• Collot, M. (2011). *la pensée-paysage Lonrai*. Bruxelles: Eurorpan sprl.
• Cosgrove, D. (1984). *Social Formation and Symbolic Landscape*, London: Croom Helm.
• Cosgrove, D. (1992). *Water, engineering and land-scape: water control and landscape in the modern period*. New Delhi: CBS Publishers.
• Cosgrove, D. (2003). *Landscape: ecology and semiosis*. In H. Palang & G. Fry, (eds.), *Landscape interfaces: cultural heritage in changing landscapes*. Netherlands: Springer.
• Council of Europe. (2000). *European landscape convention*. CETS No. 176. Strasbourg: Council of Europe. Retrived from http://conventions.coe.int/Treaty/en/Treaties/Html/176.htm
• Dabiri, M., & Masnavi, M. (2015). From Urban Development to Landscape-oriented Ecological Urbanism. *MANZAR*, 7(32), 66-73.
• Daniels, S. (1989). *Marxism, culture, and the duplicity of landscape*. In R. Peet & N. Thrift (eds.), *New models in geography, vol. II*. London: Unwin-Hyman.
• De Block, G. (2016). Ecological infrastructure in a critical-historical perspective: from engineering "social" territory to encoding "natural" topography. *Environ. Plann*. A, 48(2), 367-90.
• DeFries R. & Rosenschweig C. (2010). Toward a whole-landscape approach for sustainable land use in the tropics. *PNAS*, 107(46), 19627-32.
• Denevan, W. M. (1992). The pristine myth: the landscape of the Americas in 1492. *Annals of the American Association of Geographers*, (82), 369-85.
• Denier, L., Scherr, S., Shames, S., Chatterton, P., Hovani L. & Stam. N. (2015). *The little sustainable landscapes book*. Oxford: Global Canopy Programme.
• Duff, G., Garnett, D., Jacklyn, P., Landsberg, J., Ludwig, J., Morrison, J., Novelly, P., Walker, D. & Whitehead, P. (2009). A collaborative design to adaptively manage for landscape sustainability in north Australia: lessons from a decade of cooperative research. *Landscape Ecology*, 24(8), 1135-1143.
• Duncan, N. & Duncan, J. (2010). Doing landscape interpretation. *The SAGE handbook of qualitative geography*, 225-247.
• Dunning, N., Scarborough, V., Valdez, F., Luzzadder-Beach, S., Beach, T. & Jones, J. (1999). Temple mountains, sacred lakes, and fertile fields: ancient Maya landscapes in northwestern Belize. *Antiquity*, (73), 650-60.
• EEA. (1995). '*Europe's environment: the first assessment*', Copenhagen: European Environmental Agency. Retrived From http://www.eea.europa.eu/publications/92-826-5409-5
• Fairclough, G. & Londen, H. (2010). Changing Landscapes of Archeology and Heritage. In edited T. Bloemers, H. Kars & A. Van der Valk (Eds.), *The Cultural Landscape and Heritage Paradox: Protection and Development of the Dutch Archaeological Historical Landscape and Its European Dimension*. Amsterdam: Amsterdam University.
• Fairclough, G. (2006). A new Landscape for cultural heritage management: Characterization as a management tool. In R. L. Lozny (Ed.), *Landscapes Under Pressure, Theory and Practice of Cultural Heritage Research and Preservation*. NY: Springer.
• Fakuda-Parr, S. & Lopes, C. (2013). *Capacity for development: new solutions to old problems*. London: Routledge.
• Farina A. (2006). *Principles and methods in landscape ecology*. Dordrecht: Springer.
• Feinman, G. M. (1999). *Defining a contemporary landscape approach: Concluding thoughts*. Retrived from https://www.researchgate.net/profile/Gary_Feinman/publication/255752196_Defining_a_contemporary_landscape_approach_concluding_thoughts_Gary_M_Feinman_1999/links/0deec520a3b70ba2a5000000/Defining-a-contemporary-landscape-approach-concluding-thoughts-Gary-M-Feinman-1999.pdf
• Foli, S., Ros-Tonen, M. A., Reed, J., & Sunderland, T. (2018). Natural resource management schemes as entry points for integrated landscape approaches: evidence from Ghana and Burkina Faso. *Environmental management*, 62(1), 82-97.
• Folke C. (2006). Resilience: the emergence of a perspective for social–ecological systems analyses. *Glob. Environ. Change*, (16), 253-67.
• Folke, C., Hahn, T., Olsson, P., Norberg, J. (2005). Adaptive governance of social-ecological systems. *Annu Rev Environ Resour*, (30), 441–473.
• Forman, R. T. T. & Godron, M. (1981). Patches and structural components for a landscape ecology. *BioScience*, 31(10), 733-740.
• Forman, R. T. T. & Godron, M. (1986). *Landscape ecology*. New York: John Wiley and Sons.
• Forman, R. T. T. (1995a). *Land mosaics: the ecology of landscapes and regions*. UK: Cambridge University Press.
• Forman, R. T. T. (1995b). Some general principles of landscape and regional ecology. *Landscape Ecology*, 10(3), 133-142.
• Freeman, O., Duguma L. & Minang, P. (2015). Operationalizing the integrated landscape approach in practice. *Ecology and Society*, 20(1), 24.
• German, L., Mansoor, H., Alemu, G., Mazengia, W., Amede, T. & Stroud, A. (2007). Participatory integrated watershed management: evolution of concepts and methods in an ecoregional program of the eastern African highlands. *Agricultural Systems*, (94), 189-204.
• Gharai, F., Masnavi, M. & Hajibandeh, M. (2018). Urban Local-Spatial Resilience: Developing the Key Indicators and Measures, a Brief Review of Literature. *Bagh-e Nazar*, 14(57), 19-32.
• Golkar, k. (2008). Visual environment of the city; The evolution from a decorative approach to a sustainable approach. *Environmental sciences*. 5(4): 113-95.
• Gray, E., Henninger, N., Reij, C., Winterbottom, R. & Agostini, P. (2016). *Integrated landscape approaches for Africa's drylands*. Washington DC: World Bank.
• Gunningham, N. & Sinclair, D. (1999). Regulatory pluralism: designing policy mixes for environmental protection. *Law Policy*, 21(1), 49–76.
• Gupta, J., Termeer, C., Klostermann, J., Meijerink, S., Van den Brink, M., Jong, P., Nooteboom, S. & Bergsma, E. (2010). The adaptive capacity wheel: a method to assess the inherent characteristics of institutions to enable the adaptive capacity of society. *Environ Sci Policy*, (13), 459–471.
• Haber, W. (2004). Landscape ecology as a bridge from ecosystems to human ecology. *Ecological Research*, (19), 99-106.
• Habib, F. (2006). Challenge in the meaning of urban form. *Honar-haye-ziba*. (25), 5-14.
• Hartshorne, R. (1939). The nature of geography: a critical survey of current thought in the light of the past. *Annals of the Association of American Geographers*, (29), 173-658.
• Harvey, C. A., Chacón, M., Donatti, C. I., Garen, E., Hannah, L., Andrade, A., ... & Wollenberg, E. (2014). Climate-smart landscapes: opportunities and challenges for integrating adaptation and mitigation in tropical agriculture. *Conservation Letters*, 7(2), 77-90.

• Harvey, C. A., Komar, O., Chazdon, R., Ferguson, B. G., Finegan, B., Griffith, D. M., Martínez-Ramos, R., Morales, H., Nigh, R., Soto-Pinto, L., Van Breugel, M. & Wishnie, M. (2008). Integrating agricultural landscapes with biodiversity conservation in the Mesoamerican hotspot. *Conserv Biol*, 22(1), 8–15.
• Hemmati, M. & Saboonchi, P. (2021). Perceiver, Perceived, Perceptual Product (Evaluating Experts' Interpretations of the Components of 'Landscape' Definition). *MANZAR*, 13(56), 14-29.
• Herring, P. C. (2009). Framing Perceptions of the Historic Landscape: Historic Landscape Characterization (HLC) and Historic Land-Use Assessment (HLA). *Scottish Geographical Journal*, 125(1), 61-77.
• Holling, C. S. (1978). *Adaptive environmental assessment and management*. NY: John Wiley and Sons.
• Hoskins, W. G. (1955). *The Making of the English Landscape*. London: Hodder
• ICOMOS. (1999). *The Charter for Places of Cultural Significance*. ICOMOS Australia. Retrived from http://www.heritage.tas.gov.au/media/pdf/The%20Burra%20Charter%201999adopted.pdf.
• Ingold, T. (2000). *The perception of the environment: essays in livelihood, dwelling and skill*. London: Routledge.
• Johnston, S. Meija, B. & Vogel, S. (2017). *The Landscape Approach: a critical review of its implementation*. Swiss: ETH University.
• Jones, M. (2003). Human geographical landscapes: J.G. Granö's approach to landscapes as scientist and artist. In Grand, O. (Ed.), *Origin of Landscape Science: F.G. Gram and a New Pure Geography for a New State*. Turku: The Turku University Foundation.
• Khorasanizadeh, M. (2003). Discussions about the knowledge of landscape architecture. *Iranian architecture*, (12&13), 10-16.
• Koffi, C. K., Djoudi, H. & Gautier, D. (2016). Landscape diversity and associated coping strategies during food shortage periods: evidence from the Sudano-Sahelian region of Burkina Faso. *Reg Environ Change*, (16), 1–12.
• Kolen, J., Renes, H. & Bosma, K. (2017). *Research in Landscape Architecture: Methods and Methodology*. London and NY: Routledge.
• Kozar, R., Buck, L. E., Barrow, E. G., Sunderland, T. C., Catacutan, D. E., Planicka, C., ... & Willemen, L. (2014). Toward viable landscape governance systems: what works? ecoagriculture partners, on behalf of the landscapes for people. Washington, DC: Food and Nature Initiative.
• Kutter, A. & Westby, L. D. (2014). Managing rural landscapes in the context of a changing climate. *Dev Pract*, (24), 544–558.
• Lebel, L., Anderies, J. M., Campbell, B., Folke, C., Hatfield-Dodds, S., Hughes, T. P. & Wilson, J. (2006). Governance and the capacity to manage resilience in regional social-ecological systems. *Ecol Soc*, (1), 11.
• Lei, K., Pan, H. & Lin, C. (2016). A landscape approach towards ecological restoration and sustainable development of mining areas. *Ecological Engineering*, (90), 320-325.
• Lewis, P. (1979). Axioms for reading the landscape. In D. Meinig (Ed.), *The interpretation of ordinary landscapes: geographical essays*. NY: Oxford University.
• Light S. S. (2001). Adaptive ecosystem assessment and management: the path of last resort? In M. E. Jensen & P. S. Bourgeron (Eds.), *A Guidebook for Integrated Ecological Assessments 55-68*. NY: Springer.
• Lovell, S. T. & Johnston, D. M. (2009). Creating multifunctional landscapes: how can the field of ecology inform the design of the landscape? *Frontiers in Ecology and the Environment*, 7(4), 212-220.
• Lowenthal, D. (1975). Past time present place: landscape and memory. *Geographical Review*, 65(1), 1-36.
• Luginbuh, Y. (2014). The Position of Landscape within Sustainable Development. *MANZAR*, 6(28), 53-59.
• Lynam, T., Jong, W., Sheil, D., Kusumanto, T. & Evans, K. (2007). A review of tools for incorporating community knowledge, preferences, and values into decision making in natural resources management. *Ecology and Society*, (12), 5.
• Mahan, A. & Mansouri, S. (2017). The Study of "Landscape" Concept with an Emphasis on the Views of Authorities of Various Disciplines. *Bagh-e Nazar*, 14(47), 17-28.
• Makhzoumi, J. M. (2015). Borrowed or Rooted? The Discourse of 'Landscape in the Arab Middle East. In D. bruns, O. Kuhne, A. Schonwald, & S. Theile (Eds.), *Landscape Culture–Culturing Landscapes: The Differentiated Construction of Landscapes*. Wiesbaden: Springer VS.
• Malekian, M. (2001). Methodology in Political Science. *Political Science*, (14).
• Mansouri, S. (2005). An introduction to Landscape architecture identification. *Bagh-e Nazar*, 1(2), 69-78.
• Mansouri, S. (2010). Chisti-ye Manzar-e Shahri [Nature of urban landscape]. *MANZAR*, 2(9), 30-33.
• Mansourian, S., Parrotta, J., Balaji, P., Bellwood-Howard, I., Bhasme, S., Bixler, R. P., ... & Yang, A. (2020). Putting the pieces together: integration for forest landscape restoration implementation. *Land Degradation & Development*, 31(4), 419-429.
• Masnavi, M & Soltanifard, H. (2006). Complex landscape and landscape complexity, the study of the role of complexity in the sustainability of ecological systems. *Environmental Science*. 4(2), 85-100.
• Masnavi, M. (2010). Explicit and covert relations between city and nature, losses of ecological neglect in urban development projects. *MANZAR*, 1(5), 34-37.
• Masnavi, M. (2011). Urban Sustainable Ecosystem, Paradigm or paradox? The Necessity of Revision in the City and Environment Relations. *MANZAR*, 3(16), 59-63.
• Masnavi, M. (2013). Environmental Sustainability and Ecological Complexity: Developing an Integrated Approach to Analyse the Environment and Landscape Potentials to Promote Sustainable Development. *International Journal of Environmental Research*, 7(4), 995-1006.
• Masnavi, M. R., Gharai, F. & Hajibandeh, M. (2019). Exploring urban resilience thinking for its application in urban planning: a review of literature. Int. *J. Environ. Sci. Technol*. (16), 567–582.
• Mason, R. & Avrami E. (2002). Heritage Values and Challenges of Conservation Planning. In J. M. Teutónico & G. Palumbo (Eds.), *Management Planning for Archaeological Sites: An International Workshop*. Los Angeles, CA: Getty Conservation Institute.
• Mautz, R. K. & Sharaf, H. A. (1961). *The philosophy of auditing*. Madison, Wis.: American Accounting Association.
• McHarg, I. (1992). *Design with nature* (A. H. Wahhabzadeh, Trans.). Mashhad: University Jihad Publications.
• Meinig, D. W. (1979). *The beholding eye: ten versions of the same scene*, In D. W. Meinig (ed.), The Interpretation of ordinary landscapes: geographical essays. NY: Oxford University.
• Milder J. C., Buck L. E., DeClerck F. & Scherr S. J. (2012). Landscape approaches to achieving food production, natural resource conservation, and the millennium development goals. In J. C. Ingram, F. DeClerck & C. R. del Rio (Eds.), *Integrating Ecology and Poverty Reduction*. NY: Springer.
• Milder, J. C., Hart, A. K., Dobie, P., Minai J. & Zaleski, C. (2014). Integrated landscape initiatives for African agriculture, development, and conservation: a region-wide assessment. *World Development*, (54), 68-80.
• Mintzberg, H., Lampel, J & Ahlstrand, B. (2018). *Strategy safari: a guided tour through the wilds of strategic management*. Tehran: Jajarmi.
• Molin, P. G., Chazdon, R., Ferraz, S. & Brancalion, P. (2018). A landscape approach for cost-effective large-scale forest restoration.

Journal of Applied Ecology, 55(6), 2767-2778.
• Motalebi, G. H. (2006). A Human-Based Approach to Form-Making Principles of Urban Spaces. *HONAR-HA-YE-ZIBA*, (27), 57-66.
• Naveh, Z. & A. S. Lieberman. (2013). *Landscape ecology: theory and application*. (2nd Ed.). NY: Springer-Verlag.
• Naveh, Z. (2001). Ten major premises for a holistic conception of multifunctional landscapes. *Landscape and Urban planning*, 57(3), 269-284.
• Norberg - Shulz, C. (2003). *Architecture: meaning and place*. Tehran: Jan-e Jahan.
• Olwig, K. R. (2002). *Landscape, Nature and the Body Politic: From Britain's Renaissance to America's New World*. Madison, WI: University of Wisconsin.
• Oppel, A. (1884). *Landschaftskunde (erläuternder Text zu II. Typische Landschaften)*. Breslau: Ferdinand Hirt.
• Ostrom, E. (1999). *Governing the Commons: The Evolution of Institutions for Collective Action*. UK: Cambridge University.
• Pearson, D. M. & Gorman J. T. (2010). Exploring the relevance of a landscape ecological paradigm for sustainable landscapes and livelihoods: a case-application from the Northern Territory Australia. *Landscape Ecology*, (25), 1169-1183.
• Pfund, J. L. (2010). Landscape-scale research for conservation and development in the tropics: fighting persisting challenges. *Current Opinion in Environmental Sustainability* 2(1), 117-126.
• Pressey, R. L. & M. C. Bottrill. (2009). Approaches to landscape and seascape-scale conservation planning: convergence, contrasts and challenges. *Oryx*, 43(4), 464.
• Pretty J. (2003). Social capital and the collective management of resources. *Science*, (302), 1912-1914.
• Pretty J. N. (2002). *Agri-culture: Reconnecting People, Land, and Nature*. London: Earth scan.
• Reed, J. & Sunderland, T. (2016). *COP22 Special: What does the landscape approach look like in practice?* Retrived from https://forestsnews.cifor.org/46327/from-marrakesh-to-bali-what-does-the-landscape-approach-look-like-in-practice?fnl=
• Reed, J., Deakin, L. & Sunderland, T. (2015). What are "Integrated Landscape Approaches" and how effectively have they been implemented in the tropics: a systematic map protocol. *Environmental Evidence*, (4), 1-7.
• Reed, J., Van Vianen, J., Barlow, J. & Sunderland, T. (2017). Have integrated landscape approaches reconciled societal and environmental issues in the tropics? *Land Use Policy*, (63), 481-492.
• Reed, J., Van Vianen, J., Deakin, E. L., Barlow, J. & Sunderland, T. (2016). Integrated landscape approaches to managing social and environmental issues in the tropics: learning from the past to guide the future. *Global change biology*, 22(7), 2540-2554.
• Risser, P. G. (1987). Landscape ecology: state of the art. Chapter 1. In M. Goigel Turner (Ed.), *Landscape heterogeneity and disturbance*. NY: Springer-Verlag.
• Rossler, M. (2006). World Heritage cultural landscapes: A UNESCO flagship programme 1992 -2006. *Landscape Research*, 31(4), 333-353.
• Ros-Tonen, M. A. F., Derkyi, M. & Insaidoo, T. F. (2014) From co-management to landscape governance: whither Ghana's modified taungya system? *Forests*, 5(12), 2996–3021.
• Rouwette, E., Vennix, J., Van Mullekom, T. (2002). Group model building effectiveness: a review of assessment studies. *System Dynamics Review*, (18), 5–45.
• Saboonchi, P. & Abarghouei Fard, H. (2020). Environmental Wisdom, Indigenous Knowledge and the Role of Ecological Factors in Planning and the Construction of Kamu Village, Iran. *MANZAR*, 12(53), 18-25.
• Saboonchi, P. (2021). Landscape Tourism of Iranian Palace Description and Explanation of Qasr-e Qajar at Tehran with Landscape *Approach.Tourism of Culture*, 1(3), 29-36.
• Saboonchi, P., Abarghouyi, H. & Motedayen, H. (2018). Green Landscape Networks;The role of articulation in the integrity of green space in landscapes of contemporary cities of Iran. *Bagh-e Nazar*, 15(62), 5-16.
• Samuels, M. (1979). The biography of landscape. In D. W. Meinig (Ed.), *The interpretation of ordinary landscapes: geographical essays*. NY: Oxford University.
• Sandker, M., Campbell, B., Ruiz-Pérez, M., Sayer, J., Cowling, R., Kassa, H. & Knight, A. (2010). The role of participatory modeling in landscape approaches to reconcile conservation and development. *Ecology and Society*, 15(2), 13.
• Saxena, K. G., Rao, K. S., Sen, K. K., Maikhuri, R. K., Semwal, R. L. (2001). Integrated natural resource management: approaches and lessons from the Himalaya. *Conservation Ecology*, (5), 14.
• Sayer, J. A. & Maginnis, S. (2005). *Forests in landscapes. Ecosystem approaches to sustainability*. London: Earthscan.
• Sayer, J. A., & Wells, M. P. (2004). The pathology of projects. In T. O. McShane & M. P. Wells (Eds.), *Getting biodiversity projects to work: towards better conservation and development*. NY: Columbia University.
• Sayer, J. A., Margules, C., Boedhihartono, A. K., Sunderland, T., Langston, J. D., Reed, J., ... & Purnomo, A. (2017). Measuring the effectiveness of landscape approaches to conservation and development. *Sustainability Science*, 12(3), 465-476.
• Sayer, J., Margules, C., Boedhihartono, A. K., Dale, A., Sunderland, T., Supriatna, J. & Saryanthi, R. (2015). Landscape approaches., what are the pre-conditions for success? *Sustainability Science*, 10(2), 345-355.
• Sayer, J., Sunderland, T., Ghazoul, J., Pfund, J., Sheil, D., Meijaard, E., Venter, M., Boedhihartono, A. K., Day, M., Garcia, C., van Oosten, C. & Buck, L. E. (2013). *Ten principles for a landscape approach to reconciling agriculture, conservation, and other competing land uses*. Retrived from www.pnas.org/lookup/suppl/doxi:10.1073/pnas.1210595110 // DCSupplemental
• Schama, S. (1995). *Landscape and Memory*. NY: A. Knopf.
• Scherr, S. J., Shames, S. & Friedman, R. (2012). From climate-smart agriculture to climate smart landscapes. *Agriculture and Food Security*, (1), 12.
• Scheyvens, H., Shaw, R., Endo, I., Kawasaki, J., Ngoc, B. P., Shivakoti, B. R., ... & Takahashi, Y. (2017). Promoting the landscape approach in Asia-Pacific developing countries: key concepts and ways forward. *IGES-Policy Brief*, (37).
• Shaheer, M. (2013). Me'mari-ye Manzar: Reshteh va Khallaghiat [Landscape Architecture: Discipline and Imagination]. *MANZAR*, 5(23), 42-44.
• Sheybani, M. (2010). AsibShenasi-ye Manzar-e Shahri-ye Tehran [Pathology of Tehran's urban landscape]. *MANZAR*, 2(9), 26-29.
• Simmel, G. (2007). the philosophy of landscape Theory. *Culture and Society*,24(7-8), 20-29.
• Spirn, A. (1998). *The Language of Landscape*. New Haven: Yale University.
• Sunderland, T., Ehringhaus, C. & Campbell, B. (2007). Conservation and development in tropical forest landscapes: A time to face the trade-offs? *Environ Conserv*, 34(4), 276-279.
• Taghvaei, S. H. (2004). *Ecological landscape design in hot and dry regions of Iran; Oasis model*. Unpublishe PhD thesis. Faculty of Architecture and Urban Planning, Shahid Beheshti University, Tehran, Iran.
• Taghvaei, S. H. (2012). *Landscape architecture, an introduction to definitions and theoretical foundations*. Tehran: Shahid Beheshti University.
• Thurston, T. (1999). The knowable, the doable and the undiscussed: tradition, submission and the 'becoming' of rural landscapes in

Denmark's Iron Age. *Antiquity*, (73), 660-670.
• Tress, B. & Tress, G. (2001). Capitalising on multiplicity: a transdisciplinary systems approach to landscape research. *Landscape and urban planning*, 57(3), 143-157.
• Tress, B., Tress, G., Décamps, H. & Hauteserre, A. (2001). Bridging Human and Natural Sciences in Landscape Research. *Landscape and Urban Planning*, 57(3-4), 137-141.
• Troll, C. (1950). Die geographische Landschaft und ihre Erforschung. In *Studium generale*, 163-181. Heidelberg: Springer.
• Tuan, Y. (1974). Topophilia: A Study of Environmental Perception, Attitudes and Values, *Englewood Cliffs*. NJ: Prentice-Hall
• Tuan, Y. (1979). *Landscapes of fear*. NY: Pantheon Books.
• Turner, S. (2006). Historic Landscape Characterization: A landscape archaeology for research, management and planning. *Landscape Research*, 31(4), 385-398
• Van Oers, R. (2015). Conclusion: The Way Forward: An Agenda for Reconnecting the City. In F. Bandarin & R. Van Oers (Eds.), *Reconnecting the City: The Historic Urban Landscape Approach and the Future of Urban Heritage*. UK, Oxford: Wiley-Blackwell.
• Vance, R. B. (1929). The concept of the region. *Social Forces*, 8(2), 208-218.
• Vander Velde, B. (2014). *Theory to practice for landscape approach*. Retrived from https://forestsnews.cifor.org/25523/landscape-approach-implementation-condition-succeed?fnl=
• Virji, H., Padgham, J. & Seipt, C. (2012). Capacity building to support knowledge systems for resilient development: approaches, actions, and needs. *Curr Opin Environ Sustain*, 4(1), 115–121.
• Walter, R. K. & Hamilton, R. J. (2014). A cultural landscape approach to community-based conservation in Solomon Islands. *Ecology and Society*, 19(4), 41.
• Walters, C. (1986). *Adaptive Management of Renewable Resources. Biological Resource Management*. NJ: Blackburn Press Caldwell.
• Weatherall, M. (1968). *Scientific Method*. London: English University Press.
• Wiens, J. A. & Milne, B. T. (1989). Scaling of 'landscapes' in landscape ecology, or, landscape ecology from a beetle's perspective. *Landscape Ecol*, (3), 87-96.
• Wu, J. & Hobbs, R. (2002). Key issues and research priorities in landscape ecology: an idiosyncratic synthesis. *Landscape Ecology*, 17(4), 355-365.
• Wu, J. & Hobbs, R. (2007). Landscape ecology: the state-of-the-science. In J. Wu & R. Hobbs (Eds.), *Key Topics in Landscape Ecology*. UK: Cambridge University.
• Zekavat, K. (2006). Strategic framework of visual city management. *Abadi*, (53).
• Zonneveld, I. S. (1990). Scope and concepts of landscape ecology as an emerging science. In *Changing landscapes: an ecological perspective* (pp. 3-20). NY: Springer.
• Zonneveld, I. S. (2000). Count your blessings? Twenty-five years of landscape ecology. In J. A. Klijn & W. Vos (Eds.), *From landscape ecology to landscape science*. Dordrecht: Kluwer.

HOW TO CITE THIS ARTICLE
Masnavi, M., Motedayen, H., Saboonchi, P. & Hemmati, H. (2021). Analyses of landscape concept and landscape approach from theoretical to operational levels: a review of literature . *MANZAR*, 13(57), 22-37.

DOI: 10.22034/MANZAR.2021.283818.2128
URL: http://www.manzar-sj.com/article_137428_en.html