

## THE EVOLUTION AND METHODOLOGICAL INTEGRATION OF THE CONCEPT OF SUSTAINABLE USE

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### **Abstract**

The article analyzes the formation, theoretical evolution and methodological improvement of the concept of “sustainable use” based on a systemic approach. The aim of the study is to reinterpret the concept of sustainable use within the interrelation of ecological, economic and institutional components, as well as to propose a model for its integration into practical management mechanisms. The research employs content analysis, historical-comparative and systemic synthesis methods, examining international documents (UNESCO, UNWTO, ICOMOS) and tracing the evolution of major paradigms since the adoption of the Brundtland Report in 1987. According to the results the concept of “sustainable use” unlike the notions of mere conservation or economic efficiency, represents a flexible management mechanism grounded in feedback relationships between human activities and natural systems. The conceptual model developed as a result of the study envisions ensuring a balance between ecological limits, social participation, and economic reinvestment in the process of utilizing heritage objects in tourism.

**Keywords:** sustainable use; systemic approach; content analysis; institutional mechanisms; ecological limits; heritage objects; sustainable tourism

### **Annotatsiya**

Maqolada “barqaror foydalanish” tushunchasining shakllanishi, nazariy evolyutsiyasi va metodologik takomillashuvi tizimli yondashuv asosida tahlil qilingan. Tadqiqotning maqsadi barqaror foydalanish konsepsiyasini ekologik, iqtisodiy va institutsional komponentlar oʻrtasidagi uzviy bogʻliqlikda qayta talqin qilish. Shuningdek, amaliy boshqaruv mexanizmlariga integratsiyalashuv modelini taklif etishdan iborat. Ishda kontent-tahlil, tarixiy-komparativ va tizimli sintez usullaridan foydalanilgan boʻlib, xalqaro hujjatlar (UNESCO, UNWTO, ICOMOS), 1987-yilda qabul qilingan Brundtland hisobotidan boshlab shakllangan asosiy paradigmalarning oʻzgarish tendensiyalari ilmiy manbalar asosida tahlil qilinadi. Natijalarga koʻra, “barqaror foydalanish” tushunchasi oddiy muhofaza yoki iqtisodiy samaradorlik konsepsiyasidan farqli oʻlaroq, inson faoliyati va tabiat tizimlari oʻrtasidagi teskari aloqalarga asoslangan, moslashuvchan boshqaruv mexanizmini anglatadi. Tadqiqot natijasida ishlab chiqilgan konseptual model meros obyektlaridan turizmda foydalanish jarayonida ekologik chegaralar, ijtimoiy ishtirok va iqtisodiy qayta investitsiya oʻrtasidagi muvozanatni taʼminlashni nazarda tutadi.

**Kalit soʻzlar:** barqaror foydalanish; tizimli yondashuv; kontent-tahlil; institutsional mexanizmlar; ekologik chegaralar; meros obyektlari; barqaror turizm

## Аннотация

В статье проанализированы формирование, теоретическая эволюция и методологическое совершенствование понятия “устойчивое использование” на основе системного подхода. Цель исследования заключается в переосмыслении концепции устойчивого использования в контексте взаимосвязи экологических, экономических и институциональных компонентов, а также в разработке модели её интеграции в практические механизмы управления. В работе применены методы контент-анализа, историко-сравнительного и системного синтеза, а также проанализированы международные документы (UNESCO, UNWTO, ICOMOS) и основные тенденции изменения парадигм, сформировавшихся начиная с доклада Брундтланд 1987 года. Согласно результатам, понятие «устойчивое использование», в отличие от концепций простой охраны или экономической эффективности, представляет собой гибкий механизм управления, основанный на обратных связях между человеческой деятельностью и природными системами. Разработанная в ходе исследования концептуальная модель предполагает обеспечение баланса между экологическими пределами, социальным участием и экономическим реинвестированием в процессе использования объектов наследия в туризме.

**Ключевые слова:** устойчивое использование; системный подход; контент-анализ; институциональные механизмы; экологические пределы; объекты наследия; устойчивый туризм

## INTRODUCTION

The conceptual origins of the term “sustainable use” are embedded in the global ecological discourse deeply that emerged in the second half of the twentieth century. During the 1970s - 1990s when concerns about the planet’s ecological limits came to the forefront of the international agenda, this idea gained further strength. This period marked a paradigmatic shift from perceiving economic growth as an isolated goal to interpreting it as intrinsically linked with environmental integrity and social well-being [1]. The publication *The Limits to Growth* by the Club of Rome served as an early warning about the finiteness of global resources and the dangers of unlimited industrialization. This work laid the foundation for subsequent calls emphasizing the necessity of balanced and long-term management of natural systems.

Throughout the 1980s global institutions such as the United Nations Environment Programme (UNEP) and the World Commission on Environment and Development (WCED) pursued to establish a clear conceptual framework aimed at matching environmental protection with development needs. The landmark report “Our common future” or the Brundtland report introduced the concept of “sustainable development”. Concept defining it as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs”[2]. This definition clearly articulated the idea of intergenerational equity and laid the moral and theoretical foundation for what would later evolve into the concept of “sustainable use”.

The transition from the concept of “sustainable development” to “sustainable use” reflects a movement from theoretical principles to practical and management-oriented

mechanisms. While sustainable development emphasized the integration of economic and ecological systems. It focuses on how these systems can be managed and utilized without damaging their core functions. This approach particularly advances the idea of regulated, adaptive and equitable use referring to ways of using resources that enable meeting human needs while maintaining ecological sustainability. Such a view recognizes that complete conservation is not always practical or socially fair. Redefining sustainability not as static preservation but as a dynamic process of maintaining balance.

In the 1990s conceptual evolution was given an institutional form through the Convention on Biological Diversity (CBD) that adopted at the 1992 Rio de Janeiro Earth Summit. Article 2 of the Convention provided the widely accepted definition of sustainable use[3]:

“Sustainable use” means the use of components of biological diversity in a way and at a rate that does not lead to the long-term decline of biological diversity, thereby maintaining its potential to meet the needs and aspirations of present and future generations.

This definition scientifically substantiated the principle of intergenerational equity and created a conceptual foundation for the transition from the paradigm of sustainable development to that of sustainable use.

Taking this into account, this article examines the formation process of the concept of “sustainable use”, its scientific and theoretical foundation and its interpretation within contemporary academic discourses. The study analyzes the ecological, economic and institutional dimensions of this concept, as well as identifies its development as a systemic paradigm and its integration into practical management principles. Through this analysis, the essence of the “sustainable use” concept, its scientific foundations and methodological evolution are clarified, providing a theoretical basis for interpreting it as a central element of modern sustainability theory.

## **METHODOLOGY**

The study of the formation and scientific-theoretical approaches of the concept of “sustainable use” requires a complex, multi-stage scientific analysis. Therefore, the research methodology was built upon systemic, evolutionary and institutional analytical paradigms. This approach makes it possible to comprehensively identify the historical roots, conceptual shifts and contemporary interdisciplinary integration of the concept of “sustainability”.

The methodology is based on the following key principles:

- First, the transition from “sustainable development” to “sustainable use” is identified through conceptual reconstruction;
- Second, the interrelation of ecological, economic, and institutional paradigms is analyzed using content analysis of scientific sources;
- Third, new scientific paradigms based on the principle of “protection through use” are developed through systemic synthesis.

As a result of this process, the evolution, scientific foundations and practical application of the “sustainable use” concept are consistently revealed. Table 1

summarizes the components of the methodology, key sources and scientific innovations.

**Table 1.**

**Methodology for studying the concept of “Sustainable use”<sup>1</sup>**

<b>Methodological component</b>	<b>Description and content</b>	<b>Scientific basis / source</b>
<b>Type of research</b>	Theoretical-methodological analysis. Study of the formation, theoretical evolution, and systemic paradigm of the “sustainable use” concept.	Brundtland Report (1987), CBD (1992), Agenda 2030 (UN, 2015)
<b>Approach</b>	Systemic, evolutionary, and institutional analytical paradigms. Consistent analysis of the transition from “sustainable development” to “sustainable use.”	Meadows (1972), Daly (1996), Goodland (1995)
<b>Methods</b>	1. Content analysis - conceptual analysis of international documents and theoretical sources. 2. Conceptual synthesis - integration of ecological, economic, and institutional paradigms. 3. Systemic modeling - identification of the step-by-step formation of the paradigm.	Elinor Ostrom (2009), Folke (2004), Bosselmann (2017)
<b>Data sources</b>	Scopus, JSTOR, UNEP and UNWTO publications, international conventions and classical scientific works.	CBD, UN SDGs, World Bank, OECD
<b>Stages of analysis</b>	Stage 1: Conceptual reconstruction - identification of theoretical shifts between 1970-2020. Stage 2: Normative-operational analysis - differentiation of “development”, “use”, and “conservation”. Stage 3: Systemic synthesis - integration of ecological, economic, and institutional paradigms.	Pearce & Turner (1990), Tisdell (1999), Holling (2001)
<b>Selection criteria</b>	- Globally recognized sources ( $\geq 10$ years in circulation); - Scientific works directly related to the sustainability paradigm; - Studies combining empirical and normative foundations.	OECD (2002), UN DESA (2019)
<b>Scientific novelty</b>	The concept of “sustainable use” is elevated from a one-dimensional ecological concept to a systemic-interdisciplinary paradigm. The principle of “protection through use” is substantiated as an operational model of sustainability.	Norton (1995), Leopold (1949), Bosselmann (2017)
<b>Resulting direction</b>	A systemic paradigm model is developed. Ecological, economic, and institutional dimensions are interlinked. The next stage - Results and Discussion.	Author’s conceptual model (Figure 1)

## ANALYSIS AND RESULTS

By the end of the 1990s, the concept of “sustainable use” had acquired a multidisciplinary and interdisciplinary character. It began to be widely used not only in environmental sciences and resource economics but also in the literature on political

<sup>1</sup> Source: author’s elaboration based on research findings

science, ethics and management theory. Researchers began to interpret it as a “mechanism ensuring balance” between human consumption needs and the regenerative capacity of ecosystems [4,5]. This stage marked the transition of the concept of sustainability “from a moral ideal level to a scientific and managerial concept”. As a result, it took a firm place as a theoretical and practical basis aimed at shaping environmental and development policy in the following decades. Although the concept of sustainable use originated from the paradigm of sustainable development, its theoretical direction and practical consequences differ significantly. As emphasized in the Brundtland Report, sustainable development is based on the idea of achieving a balance between economic growth, social equality and environmental protection. While this triadic model provided a general conceptual framework for policy and planning, it was mainly normative and goal-oriented in nature. In contrast, sustainable use emerged as a pragmatic and operational derivative that sought to organize these normative ideals into concrete practical forms of use, management and ethical responsibility [4,5].

Conceptually, the notion of “use” represents a distinct epistemological orientation compared to “development”. While development implies processes of change, growth and systemic transformation, use emphasizes the principles of continuity, stewardship and responsible preservation. Scholars such as Robert Goodland [6] have emphasized that sustainability must move from theoretical balance to a practical stage, to be implemented in a way measurable through resource use efficiency and ecological responsibility. This approach laid the foundation for a technocratic interpretation of sustainability, in which “use” transforms the abstract principles of sustainability into empirical and managerial forms of expression. In the management dimension, sustainable use assumes a more functional role, serving as an interface between political-social systems and governance mechanisms. As Elinor Ostrom [7] noted, sustainable resource management is based on adaptive rules that ensure collective action, local knowledge, and equitable use, thereby preventing the depletion of common resources. Therefore, the “use” component transforms the moral obligation of sustainability into a management problem. Namely, the task of designing institutions, rules and incentive mechanisms in such a way that they harmonize human short-term interests with long-term ecological sustainability [8].

This shift also marks the beginning of the transition from a centralized “command-and-control” model to a polycentric governance system in which various stakeholders shape resource use opportunities through dynamic negotiations. Aldo Leopold [9] in his concept of the “land ethic” emphasized that human moral responsibility should extend to preserving “the integrity, stability and beauty of the biotic community”. This philosophical view reinterprets “use” not as exploitation but as a practice of care, mutual respect and proportionality. In this sense, according to Norton [10] sustainable use represents a “process-oriented ethic” in which sustainability is understood not as a final state but as a continuous process of balanced negotiation between human needs and ecological integrity. Thus, while sustainable development remains a macro-level conceptual framework for long-term social progress, sustainable use constitutes its micro-foundation that is, the practical

expression of sustainability principles at the level of interaction between humans and the environment. It embodies technocratic measurability, institutional governance and moral stewardship linking the normative ideals of sustainability with the realities of practical implementation. Bosselmann [11] emphasized that the success of sustainability lies not only in setting goals but also in fostering a culture of responsible use that integrates ecological limits into social and economic systems.

In the 21st century, the concept of sustainable use has risen to the level of a key operational and normative principle forming the foundation of global efforts toward sustainable development, ecological stewardship, and equitable governance. Today, this term has expanded far beyond its original ecological scope, becoming a strategic connecting axis between economic rationality, ecological sustainability and institutional design [12,13]. In this approach, use is no longer interpreted as a process opposed to conservation. But as a mechanism that ensures the continuity and efficiency of natural and social systems. Sustainable use provides a common language of understanding and cooperation for economic, environmental and political actors striving to harmonize human well-being with the planet's capacities.

#### *Sustainable use in economic policy*

In the field of economics, the concept of sustainable use stands at the center of debates related to natural capital accounting, “green growth” and efficient resource use. According to the World Bank [14] integrating sustainable use into national economic systems requires viewing environmental resources not as external factors but as productive capital. This approach forms the methodological basis for initiatives such as the System of Environmental Economic Accounting (SEEA), in which resource use is institutionally incorporated into the system of macroeconomic indicators. Economists such as Stiglitz [15] and Dasgupta [16] emphasize that long-term well-being depends not on the rate of resource extraction but on society's ability to restore, reuse and maintain the value of natural assets. From this point of view, the concept of sustainable use has inspired the “green economy” and “degrowth” movements which advocate restructuring production and consumption patterns that is, decoupling economic prosperity from material flows [17,18]. In this context, the notion of “use” is translated into measurable economic behavior that increasing energy efficiency, reducing raw material consumption, and investing in renewable sectors. All these represent ways to maintain growth within ecological limits. As Victor [19] noted sustainable use shifts economic thinking from the logic of accumulation to the principle of sufficiency, serving as a practical bridge between ethics and efficiency.

#### *Sustainable use in environmental management*

According to the framework of environmental sciences and environmental management sustainable use has been formed as a practical control concept based on:

- ecosystem-based management;
- the principles of resilience thinking.

IPBES [20] defines sustainable use in place of the three main pillars of biodiversity conservation. Emphasizing the principles of adaptive management, participatory governance and equitable sharing of benefits. Folke and co-authors [21]

conceptualize sustainable use as a process that enhances the self-regeneration capacity of ecosystems. In this case, use is dynamic and iterative, representing adaptive interaction rather than simple exploitation. This model aligns with the precautionary principle expressed in the 1992 Rio Declaration and is further analyzed by Tickner [22] who interprets sustainable use as a scientific and moral obligation. That is a duty to prevent irreversible ecological damage.

Sustainable use also occupies a strong position today within the system of international instruments such as the Convention on biological diversity, the Paris Climate Agreement [23], and the Kunming-Montreal global biodiversity framework [24] serving as a criterion for evaluating adaptive policies. In practice, this approach implies managing fisheries, forestry, water resources and agricultural landscapes based on adaptive limits defined by ecological boundaries. As Liu and co-authors [25] emphasize sustainable use requires multi-level coordination between local participants and global governance institutions, integrating scientific monitoring with community-based management. Thus, in environmental policy, sustainable use is no longer viewed merely as an ideal of conservation but as a functional management principle aimed at maintaining ecosystem services under socio-economic pressure.

#### *Sustainable use in political and institutional policy*

In the political and institutional context sustainable use appears as a conceptual framework for governance innovation. Serving as a mechanism for reconciling conflicting interests among the state, market and civil society sectors. The UN 2030 Agenda for sustainable development has integrated the principle of sustainable use into the system of Sustainable development goals (SDGs) deeply [26]. Being directly linked to Goal 12 (responsible consumption and production), Goal 14 (life below water) and Goal 15 (life on land). However, implementing these goals in practice requires a fundamental reform of governance structures, legal mechanisms and accountability systems [27].

Political theorists Meadowcroft [28] and Lafferty [29] interpret sustainable use as the institutional expression of sustainability that is bridge between normative ideals and administrative practice. This approach advances the principle of “ecological constitutionalism” [30] according to which states are obliged to regard natural resources as public property and manage them under long-term stewardship. In addition, modern sustainability governance has widely adopted polycentric and network-based models [31,32], in which sustainable use serves as a practical language of coordination among various legal jurisdictions, economic sectors and stakeholders. Thus, sustainable use has become a central governance concept that integrates coordination, accountability, and environmental justice within political-institutional systems. The European Green Deal [33] and similar global strategies have elevated the principle of sustainable use to the institutional level in the form of circular production standards, green public procurement and corporate sustainability reporting. In developing countries, sustainable use policies are increasingly linked to environmental justice and poverty reduction agendas, promoting mechanisms for equal access to resources and fair distribution of benefits [34]. In general, these approaches reinterpret sustainable use not

only as an ecological necessity but also as a political and economic principle governing the interrelationship between nature, society and development (Table 2).

**Table 2.**

**Comparative framework of “Sustainable use” across policy domains<sup>1</sup>**

<b>Policy Domain</b>	<b>Core Focus</b>	<b>Institutional / Policy Mechanisms</b>	<b>Practical Implementation Examples</b>	<b>Conceptual Contribution of “Sustainable Use”</b>
<b>Economic Policy</b>	Integration of natural capital into macroeconomic systems	System of Environmental Economic Accounting (SEEA); Green economy; Degrowth models	Resource efficiency programs; Renewable investment; Circular economy initiatives	Reframes “use” as productive capital, aligning ethics and efficiency; shifts focus from accumulation to sufficiency
<b>Environmental Management</b>	Adaptive management and resilience of ecosystems	Ecosystem-based management; Precautionary principle; Participatory governance	Biodiversity conservation; Sustainable fisheries, forestry and agriculture	Redefines “use” as dynamic, regenerative interaction; maintains ecosystem services under socio-economic pressure
<b>Political &amp; Institutional Policy</b>	Governance innovation and environmental justice	Ecological constitutionalism; Polycentric governance; SDG integration	Green public procurement; Corporate sustainability reporting; Resource equity programs	Establishes “sustainable use” as a normative bridge between legal, economic and civic systems; embeds accountability and fairness

*The formation of the concept of “sustainable use” in scientific discourses*

The 1990s became a decisive period in the stage of scientific consolidation of the concept of sustainable use. During this period that researchers in the fields of economics, ecology and resource management sought to transform the broad ideals of sustainability into scientifically based, practice-oriented approaches. Until this period, “sustainability” had mainly been interpreted from the perspective of development policy and environmental ethics. However, with the expansion of quantitative environmental data and the development of global ecological assessments, “sustainable use” gradually began to take shape as an independent analytical concept linking the use of natural resources, ecosystem dynamics, and economic efficiency [35,36].

In the field of natural resource economics, the concept of “sustainable use” emerged as a reaction to the limitations of classical growth models that ignored environmental constraints. Scholars such as Pearce and Turner [37] and Tisdell [38]

<sup>1</sup> Source: author’s elaboration based on research findings

developed the concept of resource sustainability based on the principles of “renewability”, “carrying capacity” and “marginal benefit”. This approach marked a shift from static conservation models to dynamic concepts determining the optimal level of use, that is, a level of utilization that ensures intergenerational equity while maintaining the regenerative capacity of natural systems. The “steady-state economy” proposed by Herman Daly further strengthened this idea by defining sustainable use as “a state in which the flow of resource use remains within ecological limits” [39]. He expressed this process through the principle of “using but not using up,” turning sustainability into a fundamental criterion of economic systems.

At the same time, significant changes also occurred in the field of ecosystem science. Researchers began to interpret sustainable use as a process of adaptive interaction between human systems and the natural environment. The adaptive management model developed by Reid and a group of scientists [40] and Holling [41] viewed human use activities as an internal component of ecosystem stability. This approach explained ecosystems as complex adaptive systems capable of self-regeneration through feedback and learning mechanisms [42]. As a result, the idea of sustainable use moved beyond an approach. It is limited to the rate of resource extraction and came to encompass the concept of ecosystem services. This highlighted the need to preserve biodiversity, food chains and hydrological functions.

Within the scope of economic activity and industrial organizations during the 1990s and early 2000s the concept of sustainable use was formed at the institutional level in corporate and political systems. It was associated with the development of environmental reporting and eco-efficiency indicators [43,44]. The focus shifted from meeting normative requirements to an innovation based sustainability principle. In which the use of resources was linked to competitiveness and long-term profitability. The “decoupling” concept proposed by the OECD meaning the reduction of environmental impact per unit of economic output, was defined as a measurable criterion of sustainable use [45]. The integration of environmental principles into production systems later created the foundation for the emergence of approaches such as industrial ecology and the circular economy [46]. By the late 1990s, the scientific interpretation of the concept of sustainable use had reached the level of a multidisciplinary paradigm that integrated environmental economics, ecosystem management and sustainability science. It now encompassed the systemic picture of interactions between humans and the environment including the principles of sustainability, regeneration and responsibility. Kates and other co-authors [47] emphasized that the issue now lies not in defining sustainability but in implementing that is in expressing it through measurable and adaptive processes. Among these processes sustainable use remains one of the most important operational expressions.

Based on the above discussions on sustainable use, Table 3 presents how prominent scholars who laid the scientific foundations for the development of the field have interpreted it from ecological, economic and institutional perspectives. Their views differ according to their points of emphasis. Some focus on ecological limits and steady-state principles, while others highlight governance instruments or adaptive

sustainability approaches. At the same time, all these perspectives collectively define the practical foundation of sustainability.

**Table 3.**

**Interpretation of the “sustainable use” concept by leading scholars<sup>1</sup>**

Researchers	Main idea	Mechanism and approach	Practical meaning
R. Goodland	Ecological limits and measurable management	Developed an environmental control system based on indicators, standards, and the “polluter pays” principle.	Sustainable use - a responsibility-based, measurable management system.
H. Daly	“Using but not using up,” balanced economy	Resource use should not exceed the rate of regeneration. Waste must remain within the assimilative capacity of ecosystems.	Sustainable use - strict adherence to natural regeneration limits.
K. Tisdell	Institutional-economic compatibility	Harmonized ecological objectives with economic interests through incentives, property rights, and policy.	Sustainable use - a system reconciling private and collective interests.
D. Pearce and R.K. Turner	Capital maintenance and non- substitutability principle	Ensuring that total capital (produced, human, natural) does not decline, with emphasis on preserving unique natural capital.	Sustainable use - maintaining capital reserves across generations.
R.K. Turner	Sustainability, risk, and adaptive management	A decision-making system that considers ecological stability, irreversibility risks, and “safe minimum standards.”	Sustainable use - maintaining ecological resilience under risk and uncertainty.

*The difference between “sustainable use” and “preservation”.*

The conceptual distinction between sustainable use and preservation represents one of the most important theoretical turning points in the history of sustainability thinking. If preservation means maintaining natural or cultural assets in an untouched, non-utilized state. That is protection that excludes use, sustainable use is based on the idea of ensuring continuity through responsible interaction. This difference reflects a paradigmatic shift from “protection from use” to “protection through use”. This approach expresses a deep understanding that when human interaction with ecosystems is based on ethical, institutional, and scientific principles, it can strengthen rather than degrade ecological integrity [48,49].

The concept of sustainable use has been formed as an integrative alternative to the classical preservationist approach in terms of ecological, economic, social and governance dimensions. From an ecological point of view it emerged as a correction to the rigid “non-interference” philosophy characteristic of early nature conservation movements. This approach separated humans from nature and viewed ecosystems as static systems that had to be kept in isolation to ensure their protection. Fundamental

<sup>1</sup> Source: author’s elaboration based on research findings

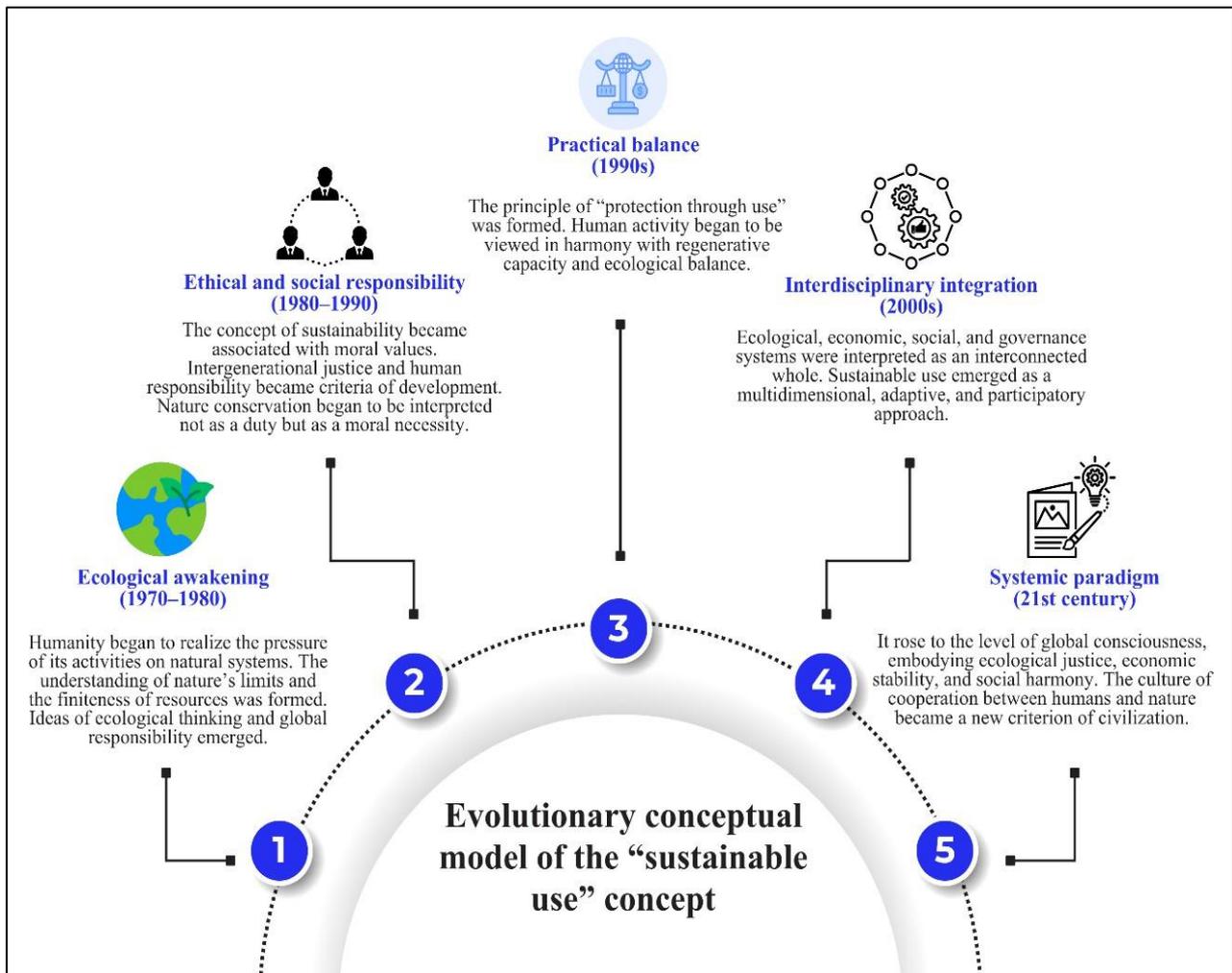
studies conducted by Holling [50] and Folke [51] showed that ecosystems are in fact complex adaptive systems whose stability relies precisely on their ability to renew through disturbance and feedback processes. On this conceptual basis, “use” is interpreted not as a destructive but as a regenerative process that is if adaptive cycles and ecological limits are respected, this process becomes an ecological activity contributing to ecosystem stability.

The same logic has been applied to the field of economics. Scholars such as Pearce, Turner, Daly and Dasgupta reinterpreted sustainability as a concept of maintaining natural capital in a productive state. This approach is not about abandoning consumption but about preserving the stock of renewable assets, meaning that economic activity is considered legitimate only when the rate of resource use does not exceed their rate of regeneration. At the governance level sustainable use implies a transition from centralized and protective management systems to polycentric and adaptive governance models. According to the studies of Ostrom [52], Lemos and Agrawal [53] community-based management systems built on the principles of trust, accountability and learning produce more effective results than command-and-control conservation models. Today, institutions such as UNESCO and UNEP promote adaptive co-management as a preferred model. This approach includes feedback-based monitoring, coordination among stakeholders, and gradual adaptation of policy.

## CONCLUSION AND SUGGESTIONS

In conclusion, “sustainable use” is emerging not as a narrow ecological recommendation like as a systemic paradigm. It characterizes a active process of stewardship that integrates ecological sustainability, economic renewal, social justice and democratic governance. Additionally, replaces the static preservationist approach with adaptive responsibility. Ensuring the joint development of nature and society toward sustainable balance (Figure 1).

As a result of the conducted literature review and conceptual analysis, the evolution of the term “sustainable use” has emerged as a systemic paradigm that integrates ecological integrity, economic efficiency and institutional responsibility. Its conceptual orientation reflects a transition from preservationist ethics to the principle of adaptive co-management, clarified empirically from ecological, economic and governance perspectives. The studies show that sustainability arises not from static protection but from feedback-based management mechanisms. Thus, the systemic paradigm of sustainable use has been scientifically substantiated as a dynamic conceptual framework linking efficient resource use, ethical responsibility and adaptive governance mechanisms. This concept views sustainability not as a final outcome but as a dynamic moral system that balances human well-being with the planet’s regenerative capacity.



**Figure 1. Evolutionary conceptual model of the "sustainable use" concept.<sup>1</sup>**

Based on these analyses, the author provides the following definition of this concept:

*"Sustainable use is the responsible, equitable and adaptive utilization of resources that ensures ecological sustainability, social equity and economic stability while not limiting the ability of future generations to use these resources"*.

The conceptual novelty of this definition lies in the fact that it interprets sustainability as a continuous systemic process that balances human well-being with the planet's regenerative capacity. Furthermore, by embedding sustainable use within the logic of the systemic paradigm methodology the author links responsible utilization with adaptive management. Making it applicable within contemporary socio-ecological and institutional contexts. Thus, research elevates sustainable use from a merely descriptive notion to the level of a new scientific category. It integrates human activity, governance systems and ethical responsibility within a unified, coherent, evolutionary concept of sustainability.

<sup>1</sup> Source: author's elaboration based on research findings

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