

Research Paper: Sustainable Development Language and Iranian Civilization: An excursion into the Middle Persian Literature for the Protection of Water and Soil Resources

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ABSTRACT

Purpose: One of the major challenges in sustainable development is forging thematic and conceptual links between indigenous knowledge and modern science. Ancient languages serve as significant reservoirs of traditional wisdom. The civilization of ancient Iran, particularly Middle Persian texts, embodies invaluable indigenous insights related to sustainable development. This study aims to trace and rediscover key conceptual foundations within Middle Persian that reflect sustainable practices in ancient Iranian civilization.

Methods: Adopting a descriptive-analytical framework, this research examines historical linguistic documents including Bundahišn, Dādestān ī Mēnōg ī Xrad, Ardā Vīraz-nāmag, the Pahlavi Rivayat, various Andarznamag (ethical treatises), Selections of Zadsparam, and the fifth and eighth volumes of Dēnkard. Through content analysis, the study identifies and reconstructs the thematic structures relating to the sustainability of water and soil resources in Middle Persian literature.

Results: The analysis reveals that Middle Persian literature presents a holistic and integrated perspective on the management of natural resources, specifically water, soil, and vegetation. These sources articulate a coherent, action-oriented linguistic framework for sustainable resource management. Environmental resources are assigned religious, economic, and legal significance, emphasizing their sacredness and value. Concepts such as the sanctification of cultivated land, the seasonal management of resources through Gāhānbārs, and punitive measures against environmental polluters illustrate an advanced understanding of sustainability. Furthermore, the integration of indigenous technological knowledge, such as qanat construction, with environmental ethics proposes a model that can complement contemporary sustainability paradigms, where spiritual and material aspects of nature conservation are interwoven.

Conclusion: The findings indicate that Middle Persian Zoroastrian texts represent the intellectual flourishing of Iranian civilization, characterized by environmental ethics, prudent resource governance, and balanced development models. These conceptualizations provide valuable insights that could inform the drafting of contemporary international sustainable development frameworks, such as those under the United Nations and UNESCO. By leveraging this ancient intellectual heritage, innovative paradigms can be developed that integrate cultural, spiritual, and scientific dimensions of sustainability. Additionally, the thematic exploration of these texts highlights a profound emphasis on human moral responsibility toward nature and a legally structured deterrence system, offering significant inspiration for modern international conventions. The study concludes that ancient Iranian wisdom offers a potent means to bridge the gap between economic development and environmental sustainability at local, regional, and global scales.

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1. Introduction

Ancient languages serve as invaluable repositories of indigenous knowledge, offering critical insights into the intellectual and cultural systems of early civilizations (Hunn, 2007). Through content analysis of historical texts—particularly Middle Persian literature—it becomes possible to both deepen our understanding of human-environment interactions and uncover traditional protocols and guidelines for natural resource management within a sustainable development framework (Berkes, 2012).

This study employs a content analysis approach to trace indigenous knowledge embedded in ancient linguistic records, aiming to facilitate its integration with modern scientific disciplines, especially within the interdisciplinary domains of sustainable development. The significance of this approach lies in the fact that indigenous knowledge, shaped by generations of local adaptation and cumulative ecological experience, offers holistic and ecosystem-compatible strategies. In contrast to the often reductionist tendencies of modern science, the analysis of ancient texts can reveal comprehensive and integrative perspectives that are crucial for addressing today's complex environmental challenges (Tengö et al., 2014).

Focusing on Middle Persian texts, this research aims to propose a model for bridging traditional and modern knowledge systems in support of the United Nations Sustainable Development Goals (SDGs). Specifically, it seeks to provide a conceptual foundation for the formulation of global environmental policies within institutions such as UNESCO and the United Nations Environment Programme (UNEP), demonstrating how the linguistic and cultural heritage of ancient civilizations, particularly that of Iran, can contribute to resolving contemporary environmental crises at local, regional, and global levels (UNESCO, 2021).

Middle Persian language, as one of the pillars of ancient Iranian civilization, not only reflects the intellectual and cultural structures of that era but also contains rich insights into the sustainable management of natural resources. Texts such as the *Bundahishn* and *Dādestān ī Mēnōg ī Xrad* provide a coherent framework for environmental ethics, sustainable agriculture, and the protection of water and soil, offering valuable models for contemporary societies. These works illustrate how ancient civilizations managed to meet their needs without the

unsustainable exploitation of natural resources (Foltz, 2013).

2. Literature Review

Based on an analysis of the paradigms, approaches, and theories relevant to this study, four key frameworks are particularly notable: the paradigms of cultural ecology and environmental practical wisdom, the theory of indigenous environmental knowledge, and the historical-environmental linguistics approach.

Systematic studies of Middle Persian texts through the lens of cultural ecology (Erkes, 2012) reveal a complex system of human-environment relationships in which religious, ethical, and practical concepts are deeply intertwined. This paradigm emphasizes mechanisms of cultural adaptation, illustrating how the sacred classification of natural elements in texts such as the *Bundahishn* (Bahar, 2021: 37) reflects not only a religious worldview but also a profound understanding of ecological relationships. Specifically, the associations of divine figures like Hordad with water and Spandarmad with earth (Boyce, 2002: 48) present a model of integrated resource management, a concept that aligns with the modern theory of ecosystem services.

The theory of indigenous environmental knowledge (Berkes, 2012) further demonstrates how systems of knowledge embedded in Middle Persian literature, such as the *Gāhānbārs*—comprehensive seasonal calendars for agricultural management—provided sophisticated ecological frameworks. This indigenous knowledge, reflected in texts such as the *Selections of Zadsparam* (*Selections of Zadsparam*, Rashed-Mohassel, 1987: 34) and various *Andarznāmags* (Jamasp-Asana, 1913: 43), includes principles like seasonal forecasting, crop diversity, and integrated water and soil management. A historical-environmental linguistic perspective (Stibbe, 2015) reveals that terms like “joyous land” (*Dādestān ī Mēnōg ī Xrad*, Tafazzoli, 2000: 29) encoded qualitative indicators of soil health, comparable to modern land assessment standards.

The paradigm of environmental practical wisdom (Foltz, 2013) offers a three-layered theoretical framework for analyzing this system of knowledge: at the macro level, religious beliefs about the creation of nature; at the meso level, religious laws such as the prohibition against water pollution in the *Vendidad* (Pourdavoud, 2015: 522); and at the micro level, practical techniques such as qanat construction (Gyselen, 1997). These layers are so deeply intertwined in Middle Persian

texts that they cannot be separated—an integration that mirrors contemporary sustainable development paradigms (UNESCO, 2021).

The approach of ancient linguistic ecology enables the reconstruction of resource management systems in the Sasanian era by integrating textual and archaeological evidence. For example, detailed descriptions of irrigation methods in the Bundahišn, combined with archaeological findings on Sasanian qanats, reveal a highly advanced form of environmentally compatible engineering, consistent with the social-ecological systems theory (Ostrom, 2009), which emphasizes participatory resource management.

Content analysis of religious Middle Persian texts such as the Dādestān ī Mēnōg ī Xrad (Tafazzoli, 2000) within the framework of comparative religious environmental theory (Boyd, 2017) shows that rules such as the prohibition of water pollution and penalties for land degradation served as early precursors to modern concepts of environmental responsibility. In the Ardā Vīrāz-nāmag, polluting natural resources—or, as described in these texts, the primary creations of Ahura Mazda—is regarded as a major sin (Ardā Vīrāz-nāmag, Gignoux, 1993: 72). These teachings can be revisited today in light of the Sustainable Development Goals (SDGs), particularly Goal 6 (Clean Water) and Goal 15 (Life on Land).

A comparative study of this body of knowledge alongside the circular economy paradigm (Ellen MacArthur Foundation, 2015) indicates that principles such as material recycling and efficient water use in agriculture anticipated modern concepts of resource optimization and clean production. These findings suggest that integrating Sasanian-era indigenous knowledge with contemporary scientific understanding can lead to the creation of hybrid models of resource management (UNESCO, 2021).

The research literature shows that while studies such as those by Amouzegar (1995) and Tafazzoli (2000) have addressed the mythological and religious dimensions of these texts, and international initiatives like UNESCO's projects (2021) have emphasized the value of indigenous knowledge, no systematic framework has yet been developed to merge this knowledge with modern sustainable development paradigms. By addressing this research gap, the present study contributes to enriching Iranian studies and offers nationally rooted models for sustainable resource management.

3. Methodology

This study employs a descriptive-analytical research method with a qualitative approach to content analysis of Zoroastrian Middle Persian texts. The methodology is based on qualitative content analysis (Krippendorff, 2018), which enables the systematic identification of patterns, themes, and conceptual relationships within ancient texts.

The research process involved two main phases:

In the first phase, a purposive selection and collection of key Middle Persian texts were undertaken. These include major works such as the Bundahišn (Bahar, 2021), the Dādestān ī Mēnōg ī Xrad (Tafazzoli, 2000), the Selections of Zadspram (Selections of Zadsparam, Rashed-Mohassel, 1987), the Ardā Vīrāz-nāmag (Gignoux, 1993), and significant sections from the fifth and eighth books of the Dēnkard, along with didactic texts such as the Andarz ī Ādurbād Māraspandān (Jamasp-Asana, 1913). These texts were selected based on targeted criteria, particularly their relevance to concepts related to natural resource management and sustainable development.

The second phase involved the coding and qualitative analysis of the content. This process was conducted at three analytical levels:

1. Open Coding: Initial extraction of key concepts and themes related to environmental resource management;
2. Axial Coding: Identification of connections between concepts and the formation of core categories;
3. Selective Coding: Integration of categories into a coherent theoretical framework aligned with the principles of sustainable development.

Through this multi-layered analytical approach, the study aims to uncover and reconstruct indigenous environmental knowledge systems embedded within Middle Persian texts, positioning them within contemporary theoretical models of sustainability.

4. Findings

Based on the selection of the primary texts in the initial stage, and through thematic-conceptual categorization and the identification of the most frequently occurring keywords in the second stage using qualitative content analysis, the linguistic data were classified under key themes concerning the significance of water, soil, and

vegetation in Middle Persian texts within the framework of sustainable development.

1. Religious-Mythological Importance of Environmental Resources

Within this thematic category, the Middle Persian linguistic corpus reflects profound notions regarding the creation and sanctification of natural resources, classified across seven subthemes based on linguistic tracking:

1.1. The Primordial Status and Formation of Natural Resources:

Water, soil, and plants are among the first creations of Ohrmazd (Bundahišn, Bahar, 2021: 37). The sequential order of creation is delineated as Sky → Water → Earth → Plants → Animals → Humans (Selections of Zadsparam, Rashed-Mohassel, 1987: 34–36), also in The Pahlavi Rivayat (Mirfakhraei, 1986: 53–54) with Earth originating from Water and illuminated by it (Bundahišn, Bahar, 2021: 37).

1.2. Divine Associations of Natural Resources:

Water is linked to the Amesha Spenta Haurvatat (Khor-dad) (Boyce, 2002: 48); Earth is associated with Spenta Armaiti (Amouzegar, 1995: 18–19); and Plants correspond to Ameretat (Hinnells, 2012: 74–75).

1.3. Sanctification, Purity, and Protection of Resources:

Emphasis is placed on the necessity of maintaining the purity of water, soil, and fire (Selections of Zadsparam, Rashed-Mohassel, 1987: 73–74), with eschatological punishments for polluters (Ardā Vīrāz-nāmag, Gignoux, 1993: 72). The concept of “happy” (fertile) versus “unhappy” (barren) lands is also prominent (Tafazzoli, 2000: 29).

1.4. Mythological Centrality of Environmental Resources:

The initial assault of Angra Mainyu (Ahriman) targets water and earth (Selections of Zadsparam, Rashed-Mohassel, 1987: 37); the first human, Gayōmart, is born from the earth (Bundahišn, Bahar, 2021: 37); and plants play a key role in the regeneration of life (Selections of Zadsparam, Rashed-Mohassel, 1987: 37).

1.5. Ritual Systems Concerning Environmental Resources:

The Gāhānbārs celebrate the creation of water and earth (Boyce, 2002: 59); sacred fires are linked to social classes (e.g., Ādur Burzēn-Mihr for farmers) (Boyce, 2002: 154); and wheat is revered as the “lord of grains” (Tafazzoli, 2000: 69).

1.6. Human Responsibility for Environmental Stewardship:

Humans are charged with honoring Ohrmazd’s six creations (Boyce, 2002: 49); agriculture is considered a religious duty (Jamasp-Asana, 1913: 43); and caretakers of the environment are promised rewards in the afterlife (Ardā Vīrāz-nāmag, Gignoux, 1993: 73).

1.7. Symbolic Modeling Systems:

Plants serve as intermediaries between water and fire (Bundahišn, Bahar, 2021: 37); water is portrayed as the source of life and illumination (Selections of Zadsparam, Rashed-Mohassel, 1987: 98); and earth is envisioned as the “mother of life” (Amouzegar & Tafazzoli, 2007: 70).

These propositions demonstrate that in the Zoroastrian worldview, natural resources were attributed not only practical utility but also sacred and central roles within the cosmological and theological framework presented in Middle Persian literature.

2. Environmental Ethics and Human Responsibility

The thematic classification of the Middle Persian linguistic literature regarding environmental ethics and human responsibility reveals concepts such as ethical principles for environmental protection, practical rules for environmental behavior, social responsibilities, motivational systems, and applied agricultural ethics. These are categorized into five subthemes.

2.1. Ethical Principles for Environmental Protection

Intrinsic Sanctity of Nature: “Water, soil, and plants are sacred creations of Ohrmazd” (Bundahišn, Bahar, 2021: 37), and preserving natural resources is considered an act of worship (Selections of Zadsparam, Rashed-Mohassel, 1987: 74).

Collective Responsibility: “All people are responsible for preserving the six creations of Ohrmazd” (Boyce, 2002: 49), and polluting water is seen as a sin against creation (Ardā Vīrāz-nāmag, Gignoux, 1993: 72).

2.2. Practical Rules for Environmental Behavior

Pollution Prevention: “It is forbidden to throw impurity into water and fire” (Vendīdād, Pourdavoud, 2015: 522), and there are afterlife punishments for those who pollute the earth (Tafazzoli, 2000: 29).

Principle of Prosperity: “A prosperous (happy) earth is a sign of wisdom” (Tafazzoli, 2000: 36), and destroying the earth leads to “unhappiness” (Tafazzoli, 2000: 29).

2.3. Social Responsibilities

Environmental Labor Division: Farmers are regarded as guardians of the sacred fire (Ādur Burzēn-Mihr) (Boyce, 2002: 154), and agriculture is one of the four main professions considered a religious duty (Selections of Zadsparam, Rashed-Mohassel, 1987: 90).

Public Education: “One-third of time should be dedicated to agriculture and land development” (Jamasp-Asana, 1913: 43), and training oxen for farming is recommended (Jamasp-Asana, 1913: 69).

2.4. Motivational Systems

Rewards and Punishments: There are afterlife rewards for protectors of water and soil (Ardā Virāz-nāmag, Gignoux, 1993: 73), and severe punishments for polluters (Gignoux, 1993: 72).

Economic Incentives: “Wheat cultivation strengthens the religion” (Vendīdād, Pourdavoud, 2015: 523), and growing cotton benefits the soul (Tafazzoli, 2000: 39).

2.5. Applied Agricultural Ethics

Sustainable Farming Principles: Crop rotation and selecting suitable species (Tafazzoli, 2000: 69) and the wise use of groundwater resources (Tafazzoli, 2000: 66).

Integrated Management: “Mixing water and soil is like blood in the human body” (Tafazzoli, 2000: 32), and aligning agriculture with natural cycles (Gāhānbārs, Boyce, 2002: 59).

3. Economic-Social Functions of Environmental Resources

The thematic classification of the Middle Persian texts regarding the economic-social functions of environmental resources reveals concepts such as an economy based on natural resources, environmental social organization, economic functions, and social connections. These are categorized into four subthemes.

3.1. Economy Based on Natural Resources

Agricultural Economy: “Agriculture (wāstaryōših) is the main occupation of the producing class” (Boyce, 2002: 154), and wheat is the “lord of grains” and the basis of nutrition (Tafazzoli, 2000: 69).

Indigenous Technologies: The qanat system as a sustainable irrigation method (Gyselen, 1997), and the use of groundwater with scientific methods (Tafazzoli, 2000: 66).

3.2. Environmental Social Organization

Professional Social Stratification: Farmers have their own fire temples (Ādur Burzēn-Mihr) (Boyce, 2002: 154), and the responsibilities of priests, warriors, and farmers are differentiated (Selections of Zadsparam, Rashed-Mohassel, 1987: 83).

Resource Management Institutions: Collective ownership of endowment lands (Daryaei, 2004: 123), and the Gāhānbār system as a resource management calendar (Boyce, 2002: 59).

3.3. Economic Functions

Production and Productivity: “Wheat cultivation strengthens the national economy” (Vendīdād, Pourdavoud, 2015: 523), and cotton cultivation supports the textile industry (Tafazzoli, 2000: 39).

Resource Distribution: Bringing underground water to the surface for public use (Tafazzoli, 2000: 66), and endowment lands allocated for public benefits (Daryaei, 2004: 123).

3.4. Social Connections

Agricultural Festivals: The Gāhānbārs related to agriculture, such as Medyosham & Pedishah (Boyce, 2002: 59; Amouzegar, 1995: 49), and harvest festivals as social events (Boyce, 2002: 59; Amouzegar, 1995: 49).

Professional Training: Training oxen for farming (Jamasp-Asana, 1913: 69), and consulting with wise men on agricultural matters (Jamasp-Asana, 1913: 43).

4. Practical Teachings of Sustainable Development:

In the final phase of thematic and conceptual processing, the category of practical teachings of sustainable development in Middle Persian literature was examined. The results highlighted concepts such as sustainable

resource management models, sustainable agriculture, environmental governance systems, and education, cultural development, and applied agricultural ethics. These are classified into four main topics:

4.1. Sustainable Resource Management Models

Integrated Water Management: “Bringing underground water to meet the sun” (discovery and utilization of groundwater) and “Mixing water with soil like blood in the human body” (management of the hydrological cycle) (Tafazzoli, 2000: 66).

Soil Quality Preservation: “Turning barren land into fertile land” (restoration of degraded lands) and avoiding soil pollution with impurities (Tafazzoli, 2000: 29).

4.2. Sustainable Agriculture

Optimal Cultivation Pattern: “Wheat as the preferred crop” (selection of compatible crops) and crop rotation with different plants (Jamasp-Asana, 1913: 65).

Low-Water Consumption Technologies: “Use of qanats” (sustainable irrigation system) and irrigation scheduling based on Gāhānbārs (Boyce, 2002: 59).

4.3. Environmental Governance Systems

Preventive Laws: “Punishment for polluters of water and soil” (Ardā Vīrāz-nāmag, Gignoux, 1993: 72) and rewards for land cultivators (Tafazzoli, 2000: 36).

Supervisory Institutions: Agricultural fire temples as centers of resource management and the role of priests in interpreting environmental laws (Boyce, 2002: 154).

4.4. Education and Cultural Development

Time Planning: “Dividing the day into three parts: education, agriculture, and rest” (Jamasp-Asana, 1913: 43) and “Recommendation for farming on specific days” (Jamasp-Asana, 1913: 69).

Practical Education: “Training oxen for farming” (Jamasp-Asana, 1913: 69) and “Consulting with wise men on agricultural matters” (Jamasp-Asana, 1913: 43).

Summary Table of Sustainable Development Concepts:

In the table below, the core principles of sustainable development, based on sustainable development theory, are summarized. These principles are juxtaposed with how concepts and keywords related to environmental resource conservation are incorporated within the context of Middle Persian texts. Topics such as practical teachings, economic-social functions, and environmental ethics and social responsibility are classified accordingly.

Table 1. Conceptual Relationships of Practical Teachings, Socio-Economic Functions, and Environmental Ethics with Sustainable Development Pillars Based on Ancient Persian Texts from the Middle Persian Period

Sustainable Development Pillar	Environmental Ethics and Social Responsibility	Socio-Economic Functions	Practical Teachings
Water Resource Management	<ul style="list-style-type: none"> The sanctity of water as a creation of Ohrmazd Prohibition of water pollution (Vendidād) Collective responsibility in protection 	<ul style="list-style-type: none"> Qanat construction as a sustainable irrigation system Equitable distribution of water Irrigation scheduling (Gāhānbār periods) 	<ul style="list-style-type: none"> Scientific extraction of underground water Water quality monitoring system Wise irrigation patterns
Soil Protection	<ul style="list-style-type: none"> Soil as the mother of life Distinction between fertile and infertile lands Punishment for soil destruction 	<ul style="list-style-type: none"> Collective ownership of waqf lands Sustainable land-use systems Taxation on barren lands 	<ul style="list-style-type: none"> Methods of land reclamation Crop rotation Soil quality indicators
Sustainable Agriculture	<ul style="list-style-type: none"> The sanctity of wheat as a divine gift Agricultural ethics Avoidance of waste 	<ul style="list-style-type: none"> Crop diversification Agricultural processing industries (cotton spinning) Agricultural education system 	<ul style="list-style-type: none"> Selection of compatible species Water-efficient technologies Annual crop planning
Environmental Governance	<ul style="list-style-type: none"> Penal laws for pollution Rewards for land developers Social class responsibilities 	<ul style="list-style-type: none"> Fire temples as centers of resource management Green taxation system Collaborative production festivals 	<ul style="list-style-type: none"> Maintenance standards Multi-layered monitoring system Feedback mechanisms
Education and Cultural Development	<ul style="list-style-type: none"> Environmental education as a religious duty Intergenerational knowledge transfer Consultation with the wise 	<ul style="list-style-type: none"> Daily schedule including agriculture Practical animal training Mentor-apprentice system 	<ul style="list-style-type: none"> Integration of theoretical and practical knowledge Public education programs Continuous evaluation system

5. Discussion

Based on the findings of this research, it can be concluded that the Middle Persian texts, as part of Iran's cultural heritage documents, contain a structured and integrated system of natural resource management that, when examined in light of modern global experiences, can theoretically be compared and assessed against the paradigms of sustainable development. On the other hand, according to Berk's (2012) theory on the application of indigenous environmental knowledge, these texts reflect a codified framework of indigenous knowledge that, over the centuries, has evolved in harmony with the ecological conditions of the Iranian Plateau, expanding both conceptually and geographically (Bahar, 2021: 37; Rashad-Mahsel, 1987: 34).

Another significant point in the analysis of the findings of this study, as a scientific proposition, is the hierarchical pattern of deepening these findings in the scenario-building of sustainable development. The results, compared to contemporary theoretical foundations, show three notable levels of alignment:

At the Macro Level: The religious approach to nature in Middle Persian texts, where water and soil are regarded as sacred creations of Ohrmazd (Boyce, 1975: 48), is today reinterpreted in the form of the "Environmental Ethics" theory. This approach has been introduced by scholars and philosophers such as Naess (1973), who emphasize the inherent sanctity of nature.

At the Meso Level: Within these linguistic documents, the legal system approach is noteworthy and evaluable. The sanctity of preserving the purity of Ohrmazd's creations, such as water and soil, in Middle Persian texts undoubtedly has its roots in Avestan sources. Texts like the Vendīdād and Nirangistān refer to this issue, particularly in relation to agriculture. For instance, in the third section of Vendīdād (Fargard 3, 1, 4), Ohrmazd tells Zoroaster that the happiest land is the one where a pious person plants as much wheat, fodder, and fruit trees as possible, and provides irrigation systems for barren land (Pourdavoud, 2015: 519–520). In another section, the importance of keeping water, plants, and the land clean is emphasized, stating that dead bodies or lifeless matter should be kept away from water, plants, and fertile land to prevent their contamination (Pourdavoud, 2015: 522). The same sentiment is echoed in a passage about the cultivation of wheat to strengthen the Mazda faith (Pourdavoud, 2015: 523–524). When compared with modern environmental conservation laws, such as the Ramsar Convention (1971) for the protection of wetlands, both

systems emphasize collective responsibility for water resources.

At the Micro Level: In tracing the Zoroastrian linguistic literature, one encounters indigenous practices such as the sustainable use of water resources through qanat construction (Gyselen, 1997), which today is regarded as a part of "Appropriate Technology" in environmental studies. Recent archaeological studies show that these systems are comparable in terms of water efficiency and ecological sustainability with modern methods (Fouache, 2022).

In further comparative analysis with similar studies, this research aligns with the works of Amouzgar (1995), which focused more on the mythological aspects of these texts. However, these texts provide new insights into designing practical models for resource management aligned with sustainable development. These findings align with the concept of "fertile" and "infertile land" mentioned in the Dādestān Mēnōg ī Xrad (Tafazzoli, 2000: 29), offering a historical prelude to the indicators of soil quality in sustainable agriculture.

The research's significant outcomes and contributions in institutionalizing and applying indigenous knowledge, integrated with new knowledge for sustainable rural development, can be framed as follows:

- A comprehensive understanding and analysis of re-designing resource governance models based on ethical principles.
- Rethinking the integrated monitoring system of resources based on qualitative indicators of indigenous knowledge.
- Understanding and analyzing the sustainability of territorial development, especially sustainable agricultural principles for Iran's low-water ecosystems.
- Redesigning an integrated framework for applying this indigenous knowledge in sustainable environmental management.

Finally, this research demonstrates that Middle Persian texts are not only a cultural heritage but also a valuable resource for designing environmental policies in today's Iran. As mentioned in the Dādestān ī Mēnōg ī Xrad, the prosperity of the land is considered a sign of wisdom (Tafazzoli, 2000: 36). This ancient wisdom can guide us toward sustainable development. Moreover, this study proves how ancient wisdom in Iranian civilization can

mitigate resource instability in economic development and achieve environmental sustainability at local, regional, and international levels. This indigenous knowledge can be used to design sustainability policies and laws in international forums such as the United Nations, UNESCO, and FAO.

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Conflict of Interest

The authors declared no conflicts of interest.

References

- Amouzgar, Z. (1995). *Mythological history of Iran*. Tehran: Samt.
- Amouzgar, Z., & Tafazzoli, A. (2007). *Dēnkard V*. Tehran: Moein.
- Bahar, M. (2021). *Bundahišn*. Tehran: Toos.
- Berkes, F. (2012). *Sacred Ecology* (3rd ed.). Routledge.
- Boyce, M. (1975). *A history of Zoroastrianism: The early period*. Brill.
- Boyce, M. (2002). *Zoroastrians, their beliefs and religious practices*. Tehran: Negah.
- Boyd, D. R. (2017). *The Rights of Nature: A Legal Revolution That Could Save the World*. ECW Press.
- Daryaei, T. (2004). *The Sasanians*. Tehran: Ghoghnoos.
- Ellen MacArthur Foundation. (2015). *Towards a Circular Economy: Business Rationale for an Accelerated Transition*.
- Erkes, E. (2012). *Cultural ecology of ancient Persia: A philological approach to Pahlavi texts*.
- Foltz, R. C. (2013). *Religions and the Environment*. Oxford University Press.
- Fouache, E. (2022). *Iranian Archaeology and Hydraulic Systems*. Archaeopress.
- Gignoux, P. (1993). *Ardā virāz-nāmag* (translated by Jaleh Amouzgar). Tehran: Moein.
- Gyselen, R. (1997). *Economy iv*. In *The Sasanian Period*. Encyclopaedia Iranica. Originally Published: December 15, 1997. Last Updated: December 8, 2011.
- Hinnells, J. (2012). *The myths of Iran*. Translated by Jaleh Amouzgar, Ahmad Tafazzoli. Tehran: Cheshmeh.
- Hunn, E. S. (2007). *Ethnobiology in Four Phases*. *Journal of Ethnobiology*.
- Jamasp-Asana, J. D. (1913). *Corpus of Pahlavi Texts*. Bombay. Fort Printing press.
- Krippendorff, K. (2018). *Content Analysis: An Introduction to Its Methodology* (4th ed.). Sage.
- Mirfakhraei, M. (1986). *The Pahlavi Rivayat*. Tehran: Institute for Humanities and Cultural Studies.
- Naess, A. (1973). *The Shallow and the Deep, Long-Range Ecology Movement*. *Inquiry*.
- Ostrom, E. (2009). *A General Framework for Analyzing Sustainability of Social-Ecological Systems*. Science.
- Pourdavood, E. (2015). *Avesta*. Tehran: Negah.
- Rashedmahsal, M. T. (1987). *Excerpts from Zadspram*. Tehran: Institute for Humanities and Cultural Studies.
- Stibbe, A. (2015). *Ecolinguistics: Language, Ecology and the Stories We Live By*. Routledge.
- Tafazzoli, A. (2000). *mēnōg i xrad*. Tehran: Toos.
- Tengö, M., Brondízio, E., Elmqvist, T., Malmer, P., & Spierenburg, M. (2014). *Connecting Diverse Knowledge Systems for Enhanced Ecosystem Governance*. *Current Opinion in Environmental Sustainability*.
- UNESCO. (2021). *Indigenous Knowledge and Sustainable Development*. UNESCO Publishing.