Dear reader,

The special issue of *La Granja: Revista de Ciencias de la Vida*, Vol. 43 No. 1 (March 2026), entitled "Quality of Life, Development and Social Responsibility, Climate Change and the Environment," stands as a significant contribution to the scientific and ethical analysis of the challenges confronting contemporary sustantability. La Granja, ranked among the top ten journals with the greatest relevance in publishing research related to sustainability, reaffirms its commitment to the generation and dissemination of rigorous knowledge that addresses the environmental, social, and economic challenges of our time and region.

In a world facing profound inequalities and global environmental crises, science bears the responsibility of guiding the future toward climate justice, social equity, and the preservation of life in all its forms. Accordingly, this issue addresses environmental and social approaches from diverse research perspectives, underscoring the need to integrate scientific knowledge with civic responsibility and political action.

The published articles examine urgent issues such as ecosystem degradation, sustainable productive transformations, climate change adaptation, and green technological innovation. At the same time, they emphasize central themes of social responsibility and quality of life, recognizing that human well-being cannot be separated from ecosystem health, nor from respect for cultural and biological diversity. In this regard, sustainability, as presented by the authors of this issue, is not conceived as an abstract concept but rather as a transformative practice that must be incorporated into education, public policy, business management, and everyday life.

This special issue includes valuable research ranging from macro-level analyses of regional transformations to studies of local productive systems across diverse approaches and territories. From a holistic perspective encompassing environment, society, and culture, Mayel Camila Castillo Ruge, Lina Paola Alfonso Chaparro, Daniel Alejandro Valderrama, and Néstor Adolfo Pachón Barbosa, from the Universidad Pedagógica y Tecnológica de Colombia, present in their article "Environmental Transformations in Latin America" a critical review of sustainable practices across territories. They analyze these practices and highlight the need to consider them as culturally embedded challenges, thereby rethinking development models through inclusive, intercultural, and ecological approaches.

Based on an analysis of the effectiveness of the Northeast Arid Zone Development Program (NEAZDP) as a poverty mitigation strategy implemented in Yobe State, Nigeria, in 2023, researchers Mohammed Sanusi Sadiq and Isiyaku Jawa Grema from the Federal University Dutse (FUD) demonstrate how the program reduced both unidimensional and multidimensional poverty, particularly across three pillars associated with quality of life: access to education, healthcare, and income generation. They conclude that sustaining its long-term impact requires continuous and targeted interventions integrated into public policies oriented toward poverty alleviation and inclusive development.

In the context of household-level water scarcity, user behavior in drinking water services is crucial for ensuring quality of life. In this regard, Jessica Müller-Pérez from the Universidad Popular Autónoma de Puebla, Ángel Acevedo-Duque from the Universidad Autónoma de Chile, Montserrat Sánchez Espinosa from the Universidad Popular Autónoma de Puebla, Irma Yomara Verges from the Universidad Autónoma de Chile, and Rina María Álvarez-Becerra from the Universidad Nacional Jorge Basadre Grohmann, in their article "Construction of an Instrument Based on the EGCI Model to Measure Sustainable Water-Use Practices among Citizens," determined citizens' intention to adopt sustainable water-care practices. Applying a model grounded in consumption economics that articulates four critical dimensions—Sustainable Water Management, Moral Commitment, and Intention to Adopt Sustainable Practices (EGCI)—they demonstrate that moral commitment and water-saving behavior significantly influence population behavior. They emphasize the need to promote environmental education focused on sustainable water management and to design strategies aimed at reducing waste and increasing efficiency in residential water use, particularly in territories where this natural resource is being depleted at alarming rates.

Quality of life is also closely linked to the health of rural socioecological systems, especially those sustaining food security. Research conducted in Colombia, in Cundinamarca (municipalities of Cáqueza, Choachí, and Fómeque) and Boyacá (municipalities of Sutamarchán, Santa Sofía, Sáchica, Tinjacá, and Villa de Leyva), by the research team led by Karla Juliana Rodríguez-Robayo, Víctor Camilo Pulido-Blanco, Carlos Andrés Moreno-Velandia, Diego Alejandro Rojas-Ramírez, Eduardo María Espitia-Malagón, Mauricio Camelo-Rusinque, Andrea del Pilar Villarreal-Navarrete, and Yajaira Romero-Barrera from the Corporación Colombiana de Investigación Agropecuaria (AGROSAVIA), identified critical points within the social, environmental, productive, and governance components of the tomato socioecological system. These components are determinant for promoting transitions toward sustainable production models, given their importance in providing ecosystem services essential to production and to the quality of life of producers and, consequently, consumers.

Taken together, the scientific articles compiled in this special issue confirm that addressing quality of life requires a multi- and transdisciplinary approach. Culture,

technology, and the social and environmental context shape practices that may enhance or deteriorate the quality of life of populations, particularly rural communities. We are confident that these academic contributions will provide guidance for the development of targeted actions and emerging public policies aimed at sustainable development and the improvement of quality of life in both urban and rural populations.

Within our selection of miscellaneous articles in the Earth Sciences, we present the article "Meteorological Variability and Its Impact on Agricultural Activities in the Ecuadorian Amazon in Pastaza (2011–2021)," authored by Brigitte Leiva-Zuñiga, Julia Maza-Valladolid, and Reni Vinocunga-Pillajo from the Faculty of Life Sciences at Universidad Estatal Amazónica (Puyo, Ecuador). This study analyzes the relationship between meteorological variables—temperature, precipitation, relative humidity, and evaporation—and agricultural and livestock productivity in the canton of Pastaza over a decade. The research provides key scientific evidence regarding the differential vulnerability of strategic crops such as cocoa, coffee, and sugarcane to climate variability, highlighting the greater resilience of plantain and cassava.

Similarly, the manuscript "Quantitative Analysis of Crop Richness and the Adoption of Monocultures in Ecuador" examines the socioeconomic determinants influencing agricultural diversification and the expansion of monoculture in the country, using data from the 2014 Living Conditions Survey and multivariate techniques. The study shows that poor, large households led by Indigenous populations tend to maintain greater crop richness, whereas factors such as higher education levels, off-farm employment, and proximity to roads promote monoculture adoption. In this way, the work contributes to a structural understanding of the transformation of rural productive systems under the pressures of the market economy. Its social impact is significant, as it underscores the need for public policies aimed at protecting agrobiodiversity as a strategy for environmental sustainability, food sovereignty, and the resilience of rural territories in Ecuador.

From the Agricultural Sciences, the study entitled "In Vitro Propagation of Banana (*Musa* spp.) through Somatic Embryogenesis," by Jessenia Lucero-Murillo, Jorge Manzano-Torres, Iliana Loaiza-Maldonado, and Yamile Orellana-García from the Instituto Superior Tecnológico Ismael Pérez Pazmiño (Machala, Ecuador), presents a systematic review of the use of somatic embryogenesis as a tool for micropropagation and genetic improvement of banana. The research analyzes the potential of this technique for mass plant multiplication and its application in genetic transformation processes aimed at combating devastating diseases such as *Fusarium oxysporum f. sp. cubense* (Foc TR4) and *Mycosphaerella fijiensis*. This study strengthens the field of plant biotechnology applied to strategic export crops, providing technological alternatives to sustain the competitiveness of the banana sector, which is fundamental to the regional economy and rural employment generation.

Likewise, the article "Effects of Lead and Chromium on Germination and Root Architecture of *Typha latifolia* (Typhaceae) Seedlings," developed by Renato Oquendo and Galo Pabón-Garcés from Universidad Técnica del Norte (Ibarra, Ecuador), Loiret Fernández from the Universidad de La Habana (Cuba), and Lucía Vásquez-Hernández, experimentally examines the impact of heavy metals on germination and root development in this aquatic species. The results demonstrate that chromium drastically reduces germination percentage and significantly affects root area, highlighting the importance of the physiological response of aquatic macrophytes to contamination. The study underscores the relevance of environmental management of water bodies and the need to strengthen heavy metal pollution control policies in strategic ecosystems such as Yahuarcocha Lagoon.

In the field of Biotechnology, the research entitled "Valorization of Banana Peel (*Musa paradisiaca*) as Raw Material for Biopolymer Production," by Jimena Taco, Ronald Jiménez, and María Soto from the Instituto Superior Tecnológico Tsáchila, investigates the development of biofilms derived from agroindustrial banana waste. The study evaluates physicochemical parameters such as viscosity, moisture absorption, and water vapor permeability under different processing conditions and glycerol concentrations, thereby contributing to the field of green chemistry and biomaterials engineering. The social impact of this research is particularly significant in the context of the global plastic pollution crisis, as it proposes sustainable alternatives that also promote circular economy principles and the valorization of agricultural waste.

Finally, the article "Optimization of Acid Hydrolysis Factors to Obtain Glucose from Banana, Cocoa, African Palm Residues and Sugarcane Bagasse," by Mónica F. Abril-González, Angélica M. Vele-Salto, and Verónica Pinos-Vélez from IRCMA and the Faculty of Chemical Sciences at the Universidad de Cuenca (Eco-Campus Balzay, Ecuador), experimentally optimizes the conditions to maximize glucose production from residual biomass using a factorial design. The authors identify 120 °C, 150 minutes, and 1% sulfuric acid as optimal conditions, highlighting the high yield obtained from sugarcane bagasse and palm rachis. This research constitutes an additional contribution to the transition toward more sustainable energy matrices, the valorization of agroindustrial residues, and the reduction of fossil fuel dependency in Ecuador.

Within this context, the studies compiled herein underscore that both research processes and teaching–learning processes must be oriented toward the construction of values of respect, solidarity, and empathy toward the natural environment. From this perspective, quality of life is not limited to economic indicators but extends to equity in access to education, healthcare, environmental services, and collective participation in decision-making. This special issue invites reflection on how life sciences can and must transform into a science for life: an inclusive, ethical science capable of strengthening dialogue between technical knowledge and ancestral wisdom. The published studies reflect the

journal's commitment to disseminating interdisciplinary results that contribute to the design of long-term sustainable policies. Collectively, the articles constitute a call for scientific cooperation and shared action in response to global challenges.

With this special issue, *La Granja: Revista de Ciencias de la Vida* reaffirms its commitment to the dissemination of responsible knowledge, the promotion of critical thinking, and the construction of a global culture of sustainability. We extend our gratitude to the researchers, reviewers, academic institutions, and readers who make possible this space for encounter and reflection, oriented toward the defense of the planet and the improvement of quality of life for all its inhabitants.

Sincerely,

PhD. Ignacio de los Ríos
Universidad Politécnica de Madrid, España
EDITOR-IN-CHIEF

PhD. Sheila Serrano Vincenti
Universidad Politécnica Salesiana, Ecuador
EDITOR-IN-CHIEF

PhD. Lisandro José Alvarado-Peña
Universidad Tecnológica de Escuinapa. Red REOALCEI, México
GUEST EDITOR

PhD. Narcisa Requelme
Universidad Politécnica Salesiana, Ecuador
GUEST EDITOR