http://doi.org/10.23925/2179-3565.2026v17i1p186-202



RISUS - Journal on Innovation and Sustainability
volume 17, número 1 - 2026
ISSN: 2179-3565
Editor Científico: Arnoldo José de Hoyos Guevara
Editor Assistente: Vitória Catarina Dib
Avaliação: Melhores práticas editoriais da ANPAD

LAYERED UNDERSTANDING ABOUT THE NESTED REALITY OF NATURE AND SOCIETY IN THE BUSINESS VALUE CHAINS FOR SUSTAINABILITY – SYSTEMS THINKING CONNECTING IN AN INTERGENERATIONAL EFFECT

Compreensão em camadas sobre a realidade aninhada da natureza e da sociedade nas cadeias de valor dos negócios para sustentabilidade - pensamento sistêmico conectando-se em um efeito intergeracional

Muthu Krishna V
Gujarat National Law University Gandhinagar, Gujarat, India
Email: vmuthuphd202107@gnlu.ac.in, vmuthuphd202107@gmail.com, pavanapura@gmail.com

ABSTRACT

The globe is today sustainability hungry. There is a huge potential to work common and collective in the sustainability transition and drive multi-decade long development cycles. The challenges and opportunities in the new approaches needed for sustainability is large and the associated risks and to take up responsibility are larger. Regulating the growing interests and aspirations to support sustainable development and align in line with sustainability in the transformative outcomes are huge and are varying unimaginably in the needs and wants of growth and development phases. This paper tries to focus on systems thinking for sustainability science where the advancement in the value based sustainable outlook has to happen recognizing the multiple layer and interconnectedness bringing in shared identity and reasonable belongingness, in developing many new understanding and purposes for the common and collective actions of states, markets and business environment to build, extending the base line of economic development and growth to be placed in the triple bottom line in the layered understanding and nested reality. Layered understanding, reflection and reformulation in the value chains are needed for the very specific sustainable and contributory business environment activity chains for people and planet leading towards common prosperity. This paper addresses qualitatively from the point of view of the key interests in sustainable development themes like distribution, fairness, welfare, wellbeing, equity and justice along with the twin questions of attaining sustainability and leading towards sustainable development goals in the futuristic growth and development pathway as support structures leading a transition having an intergenerational effect.

Keywords: Systems thinking, Sustainability science, Social and environmental issues, Resiliency, Sustainability, Welfare, Wellbeing, Regenerative economics, Resource economics, Sustainability management, Policy management, Adaptive strategies, Business environment, People and planet

SUBMETIDO EM: 01/12/2025
ACEITO EM: 20/02/2026
PUBLICADO EM: 30/04/2026

RISUS - Journal on Innovation and Sustainability
volume 17, número 1 - 2026
ISSN: 2179-3565
Editor Científico: Arnoldo José de Hoyos Guevara
Editor Assistente: Vitória Catarina Dib
Avaliação: Melhores práticas editoriais da ANPAD

COMPREENSÃO EM CAMADAS DA REALIDADE ANINHADA DA NATUREZA E DA SOCIEDADE NAS CADEIAS DE VALOR DAS EMPRESAS PARA SUSTENTABILIDADE - PENSAMENTO SISTÊMICO CONECTANDO EM UM EFEITO INTERGERACIONAL

Layered understanding of the nested reality of nature and society in enterprise value chains for sustainability - systems thinking connecting in an intergenerational effect

Muthu Krishna V
Gujarat National Law University Gandhinagar, Gujarat. India
Email: vmuthuphd202107@gnlu.ac.in, vmuthuphd202107@gmail.com, pavanapura@gmail.com

RESUMO

Hoje o mundo está faminto por sustentabilidade. Há um enorme potencial para trabalhar de forma comum e coletiva na transição para a sustentabilidade e impulsionar ciclos de desenvolvimento que duram várias décadas. Os desafios e oportunidades nas novas abordagens necessárias para a sustentabilidade são grandes, e os riscos associados e à responsabilidade são maiores. Regular os interesses e aspirações crescentes de apoiar o desenvolvimento sustentável e alinhar com a sustentabilidade nos resultados transformadores é fundamental e varia inimaginavelmente nas necessidades e desejos das fases de crescimento e desenvolvimento. Este artigo busca focar no pensamento sistêmico para a ciência da sustentabilidade, onde o avanço da perspectiva sustentável baseada em valores precisa acontecer, reconhecendo as múltiplas camadas e interconexões que trazem identidade compartilhada e pertencimento razoável, desenvolvendo muitos novos entendimentos e propósitos para que as ações comuns e coletivas dos estados, mercados e ambiente empresarial possam ser construídos, estendendo a linha base do desenvolvimento econômico e crescimento para ser colocada na linha tripla de fundo em uma compreensão em camadas e realidade aninhada. Compreensão em camadas, reflexão e reformulação nas cadeias de valor são necessárias para as cadeias de atividades do ambiente empresarial sustentável e contributivo para as pessoas e o mundo, conduzindo ao bem-estar comum. Este artigo aborda qualitativamente do ponto de vista dos interesses-chave em temas de desenvolvimento sustentável, como distribuição, justiça, bem-estar, equidade e justiça, juntamente com as duas questões gêmeas: alcançar a sustentabilidade e conduzir a objetivos de desenvolvimento sustentável no caminho de crescimento e desenvolvimento futurista, como estruturas de apoio que conduzem uma transição com efeito intergeracional.

Palavras-chave: Pensamento sistêmico, Ciência da sustentabilidade, Questões sociais e ambientais, Resiliência, Sustentabilidade, Bem-estar, Economia regenerativa, Economia de recursos, Gestão da sustentabilidade, Gestão de políticas, Estratégias adaptativas, Ambiente empresarial, Pessoas e planeta

INTRODUCTION

Economists and policy makers around the globe have acknowledged the centrality of life and liveability in the connected planet, people and prosperity, in the triple bottom line based systems thinking from where emerges the sustainability science, along with the priorities of intergenerational needs and wants to be taken into consultation when dealing with the raising problems of the day faced equally by the business, society and nature in the wake of the core questions on what is fair and equitable which can build sustainability aspirations. Sustainability science is in turn to help manage with the shifts in the subjective perception of the shared feeling of sufficiently accepted, valued and connected in the happening clean development based economy, achieving effective safety and security in impacts and outcomes, getting the aspirations connected in sustainable development goals and maturing with the threat of growing unpredictability, through the effective functions of markets, states and business environment which pose the common and collective worries about responsiveness and responsibility in the adaptation, growth models and crucial interaction between different layers of support and defence leading in the aspirations of sustainability and the search for common future for all.

Along the business activity chains where traditional and linear thinking may not be very helpful demanding for a holistic systems thinking in global value chains getting build for sustainability the vital concerns are, is it the dominance of considerations of only return and revenue, about the economic benefits is central or the connected collective socio-natural wealth and the common eco-economic sustainability which is a question of life and liveability which has to be characterized in equal importance, in what could lead to a shared identity and reasonable belongingness, the other many questions on justified and over use, preservation and diversity, adaptation and mitigation, conservation and optimum utility, socio-natural capital and the business-economic surplus on what to do, why to do, when to do and how to do about building economic surplus for sustainability and wealth from a sustainable business environment. With the needed multi-layered sustainability outlook having intergenerational effect in the wants and needs, in the fundamental tensions, for the present and future in a certain way could be seen in the many dichotomy in the growth and development nexus, as largely a division or contrast between two things that are perceived as being opposed or entirely different but in a sustainable reality could be very relative leading to a systems thinking, in a holistic perspective connecting with people and planet in prosperity for a common future for all (Adams, 2006; Babalola et al., 2022; Demekas et al., 2020; Herron et al., 2025; Thomas, 2011; Wiegratz et al., 2024).

1 METHODOLOGY AND APPROACH

This paper tries to attempt to analyse sustainability science and systems thinking concepts in the interviewed expert perspectives for sustainable growth, sustainable development, sustainable development goals and sustainable resource usage in terms of crossing the conventional barriers in integrating the systems thought through interdisciplinary understanding. It tries to analyse how and why state and markets need to put common and collective progress in place in achieving sustainability and what all goes inside the policy and strategy interventions getting build in the sustainability theme which could help to grow more sustainability-based approaches placing increasing focus on nature and society along the business value chains where value points to a sustainability and resilient value make. Analysing many different outlook and approaches based on systems thinking about sustainability are tried in this paper having expert interview as the research tool in a qualitative research method. Most particularly in what could contribute to quality of life, liveability and economic development, not losing focus on the long-time scale of intergenerational planning in the core concern discussed.

The discussion of this paper could be used to interpret a layered understanding in terms of maintaining the integration of economy, management, social and legal thought and practice involving multiple, interdependent systems in the overlapping of the triple bottom line. Finding a base for relevant long term wellbeing and holistic approaches in the closed loop and regeneration pathways leading to sustainable development have to be carefully chosen which means finding how significant, essential and flexible are the various interdisciplinary and systems based understanding leading to balanced economic growth and development in the wake of sustainability in the

core concerns trying to find alternative to business-as-usual which are at present largely based on the expectations from mostly a narrow assessment of short-time remedies only neglecting largely why sustainability science matters in a long-run (Browder et al., 2019; Hernández & Muñoz, 2022; Swapan and Tapan, 1999; Thomas, 2014; UNCTAD, 2022; Wan Rosely & Voulvoulis, 2024).

The study included thirty experts from the background of science, technology, social science, environmental studies, international law, social studies and relevant disciplines, representing corporate houses, international organizations, state institutions and academia from 20 nations in the G7 and G20 grouping contributing for a study conducted as a part of a larger research study of sustainability and resiliency. Most of the experts are doctorate holders with an average work experience of one decade and more. Each interview lasted approximately 45 minutes to 1 hour and video recorded. The interviews have been planned effective with careful selection of sample following standard purposive stratified sampling, finding the relevance of profiles with the research problem, experts having deep knowledge about the subject area and a short informative synopsis was sent prior hand for a general introduction of the research area finding their willingness to participate. The theoretical saturation came to fore in the taken sample size based on applying standard qualitative research techniques. In the study, a three stage qualitative process was done in the part of data analysis. A thematic analysis was used in the processing of the qualitative data collected.

Following the literature review undertaken earlier, the concepts from expert interview were related with the thematic areas and explanations provided by the experts. The qualitative data was organized with the main-themes and sub-themes following an open-axial-selective coding. In the first stage the interview data were examined carefully and grouped under suitable head based on the verbatim prepared. In the next stage the qualitative data was analysed with the research question and summarized in accordance with the qualitatively classified data sets and sub-sets. The third stage consisted of the qualitative data getting concretized meaning transformed into the needed concept levels to make inferences, for finding the emergent patterns and to reveal the necessary accuracy part explaining the connecting relationships between the codes. Thus, this paper attempts to provide a scholarly dialogue regarding the layered understanding which needs to develop based on the role and value of sustainability and sustainable development using qualitative techniques particularly focusing on the interdisciplinary areas of economics, management, socio-business studies and law. From the last few decades there has been a growth in detailed and ongoing discussion as to which are the paradigm shifts happening in sustainability spaces especially concerning the business environment. The scholarly dialogue aimed in this paper is attempted to provide for an unlocking of key potential in the sustainability issues of which further steps of research has to definitely improve the quality, through furthering qualitative visualization needed for more application areas and broadening the search of the balanced growth trajectory. The paper uses in its present scope in the likes of a qualitative applied economic and management research method, combining and aiming to provide with a useful roadmap through substantiating layered understanding about the nested reality of nature, society and economy in a conceptual business value chains one functionality linked to and layered with the other, using the expert interview.

2 THEORETICAL BACKGROUNDS

Profound concerns and the diverse forms in integrating disciplines and perspectives in a systems thinking for a layered understanding

A layered understanding for sustainability is a concept which emphasises that sustainability is built on multiple layers as a complex multidimensional system connecting three of the basic fundamental pillars which are the planet, people and profit, also could be said the environment, society and economy. Nurturing the interests of markets and states in the application of essentials of doctrines of sustainability could lead towards better equity and justice connected in transparency and fairness developing in a holistic complex multidimensional systems-based understanding which is the demand for more general impartial just treatment and behaviour without favouritism or discrimination to any of the sides which could be extended to be common and collective in approaches. The responsible benefits sharing and shouldering the burdens created by anthropogenic activities, across nations and markets within the respective private, public and social levels, must be necessarily shared and distributed in a way

that no one gets reasonably affected (Babalola et al., 2022; Midgley, 2023; Thomas, 2014; Wan Rosely & Voulvoulis, 2024). In reality this means that the process of transition from less clean to more clean economy, healing the past wounds, making just the historical injustices, in putting forward a course correction have to happen with sustainable interests in leading a positive growth trend having sustainability embedded guidance, regulatory and nurturing activities which have to have the most suitable and fair arrangements and with short and long term aligning of efforts having nature and society in a very important integration with the business chains. In particular the layered understanding means given the nature of the business and trade relation in the levels of relative loss or gain which has to be more than only profitability and returns, will depend on the nested realities in capacities and best practices which have to be fair, just and equitable in subjective terms for the building of a common future which could restore the ability to grow and develop to continue over a long period of time (Cabrera et al., 2023; Hernández & Muñoz, 2022; Midgley, 2023; Weaver et al., 2025).

The designing of sustainability principled approaches depends on the prevailing interests, aspirations and operational conditions at the levels of business, economics and legal environment and based on the sets of values, risks, strengths, weakness and the needed capability and competence which shall mandate in what they shall settle for with the aim to increase the most crucial management and economic skills for clean and sustainable transformation. Due gentle policy guarantees at legal, economic and efficient process levels to guide the institutions which use to enforce procedural fairness have to be accommodative in the organizational context of the real needs, of the markets, states and the business environment contained within and help the markets and states to face with the challenges and difficulties in constructing the key aspects, in design and placing of competitive interests duly guaranteed within the governance and regulating to nurturing approaches introducing and in line with some of the key common and collective concerns (Browder et al., 2019; Cabrera et al., 2023; Gamarra et al., 2022; Midgley, 2023). The designs of systems thinking for sustainability have to consider the equal spaces of environment, economy and society through policy and strategy which could be adopted by institutions and organizations, in the process a layered understanding develops to try to guarantee for optimal planning and operations which have to recognise the complex, interconnected and dynamic processes and operate with minimum assurances of safety and security in a more complex and turbulent space amidst epochal challenges. In the enforcement of fair and equitable practices in the business environment depending on the sustainability aspects to find for what means being equitable and just, in the ideas of fairness, transparency and accountability the concept moves beyond, to have to bring in encouraging the emphasise of the layered understanding and nested reality of sustainability dimensions (Boda et al., 2022; Cabrera et al., 2023; Divanbeigi & Ramalho, 2015; Duchen, 2024; Espinosa, 2022; Martini, 2021; UNCTAD, 2020).

The layered understanding and nested approaches of sustainability meet in the subjective and behavioural trends and techniques focussing on how and why behind the happening of issues and risks to turn values, what could be the possible sustainable solutions in the short and long term ranging from individual traits to collective ones, offering different kind of observation from the crucial interaction between different layers, performing the analysis and exploring of real world contexts which shall provide the management, economics, legal and governance system a required essential guide in tracing the action plans on sustainability in the decision levels to guide the markets, states and business world to work in a systematic and coherent way. As the integration of the inter-disciplinary, complex multilayered system is one of the very important components of the overall transition, eco-socio efficient value chains for sustainability is in a long pipeline dream for both sustainability and the related concept of sustainable development (Chen et al., 2015; Gereffi & Lee, 2016; Jonker & Faber, 2018). Generally economic and legal issues follow trade, investment, management and governance practice as all these have very common and similar ground in approaches where the integration of systems converge in the nature of relationships, process and pathways useful in achieving the desired results. In resolving conflicts of interest, providing a common ground for the developmental model in the contextual matters, risks turning value, dispute resolution and furthering commitments, aspirations, leading in obligations, assurances and interests have to be fulfilled by the many ends of value chains for sustainability. Layered understanding for sustainability in the application of qualitative and nested approaches are very much needed and important in the inter-disciplinary multi-layered and complex sustainability studies and it forms a vital area of academics and research which seek to explain why, when and how a change occurs and how could it be influenced to emphasise adaptive growth, going further explaining the process, in stages,

identifying the patterns and finding for the needed leverage from the happening changes to the expected ones, giving potential to lead larger shifts, giving optimal scope for changes to interact with risks and values, measure the interventions and find for more in the sustainability pathway providing a systematic approach to understand, intervene and advance (Aguilar, 1967; Barton. Barry, 2012; Chen et al., 2015; Garriga, 2014; Guo et al., 2016; Millar et al., 2019; Nagar, 2009; Theodore Dwight Bozeman, 1977).

Reflecting on the layered theme of sustainability through systems thinking

Sustainability is solely not any environmental, economic or social issue in isolation but all. The state of tension between the eco-economical and socio-natural spheres is ever growing where the systems are nested in and they overlap in multi-layers in the triple bottom line. There is a large need to develop suitable connect in the contexts and know from within as in the socio-economic-business-environmental-legal-governance system is in nexus working in the very close proximity to sustainability conditions are very helpful in attaining truly a balanced development pathway which is resilient and sustainable, where there has to be a conducive and supportive business space for accompanying the sustainability transition (Browder et al., 2019; Cechvala & Ganson, 2024; Liu & Koivula, 2023; Wiegratz et al., 2024). The academic and practice streams awaiting great changes in the massive process of the happening transformation and transition could find more in the layered understanding getting developed describing sustainability through many interconnected layers exploring options for people, planet and process for prosperity to focus on preserving eco-economic and socio-natural wealth, where transformation could be more than a fundamental mechanistic change in the state, market and business environment decisions developing from the mechanistic process levels to a transition which could mean more to be organic one, natural environment rights represented in proxy where a sustainable just transition is one which reference to a deep, system wide change in complex and multilayered process leading to a functional harmony and socio-ecological integrity. The just transition could be one to characterise by a gradual behavioural, sociological, phenomenological and emotional change process brought in through with a larger needed reorientation that must happen in all scales, in economy, society, ecology, polity, where the values which could be possibly say as in an intergenerational sustainability value, in the core of concepts in systems thinking which has to take care of intra-generational equity and justice, needs and wants also where the complex systems have to be more connected and the connections lead to a butterfly effect, one affecting the major many (Duchen, 2024; Herron et al., 2025; Martini, 2021; Thomas, 2014).

Sustainable development goals are very closely associated with the life and liveability space which are intended and shall help to create a safer, suitable and prosperous planet connecting people lives with the natural and business environment. In layered understanding to search for intergenerational value in effect it is very important to recognize sustainable development goals and to search for sustainable development solutions through business environment, as the role which is needed to be played by business environment for a balanced development is very critical and the socio-ecological goals getting integrated with the public policy, business policy and corporate strategy spaces are very vital in achieving the large scale of transition. Requiring a sea of large scale of changes, gaining more responsibility and necessity to achieve socio-ecological integrity, the trigger of the butter fly effect to lead to an intergenerational systems thinking which demands the epochal problems not to be viewed at any individual or nodal levels but as one very much interconnected and imminent in the past, present and future of generations (Boda et al., 2022; Divanbeigi & Ramalho, 2015; Herron et al., 2025; UNCTAD, 2022). The sustainable development is very ambitious at any scale and especially in an intergenerational scale. Layered understanding helps through the adequate progress in building global-local value chains for sustainability in the intra and intergenerational questions in the inter-connected points of larger multi-generational system. In the direction which could make possible in the business environment turn sustainable recognizing the existence of the many practical inter-connectedness and layers in reaching the long-term socio-natural and eco-economical targets have to withstand disturbances and paradigm shifts. Building up of new value chains based on sustainability and concepts of resiliency in bringing more responsible production and responsible consumption, shall be made only if the business environment is pulled in the sustainability pathway making practical progress towards goals relating states and markets in intergenerational actions equally considering the interconnected systems in decision making

process (Browder et al., 2019; Cabrera et al., 2023; Duchen, 2024; Gamarra et al., 2022; Liu & Koivula, 2023; Midgley, 2023).

The interdisciplinary research for sustainability in a compelling qualitative outlook tries to provide for how sustainability problems could be approached in an unavoidable layered understanding about the nested reality of nature, society and economy, by focussing and attempting to make honest responses and developing robust process and applications to work to shield the development prospectus from devastations and detrimental impacts where there is much cannot be measured or counted about the deep seated and non-numerical elements which shape how sustainability interacts with the past, present and future of generations where intergenerational value and its effect could be a super set of intra-generational one too. If business environment starts to work with the business process, putting sustainability a top priority in production conditions, involving activities of business chains which have to connect to product to store to consumers to back in feedback for recycling and reworking tracing more usability and utility closing the most important loop of economy with the goals of re-creation, regeneration and reusability in the possible corners of global and local levels the shared identity and belongingness in the optimal allocation and use of resources could be the most wanted and could become a balanced development blueprint. Sustainability connects the business spaces from one extreme end say society and nature to the closing end in a value chain say economic and business prospectus, have to be in a very balanced and interconnected way, which could find very diversified applications as such in integrating activities and purposes from farm, ocean, mines, industry, factory, mills, refineries and the planetary cycles of ice, water, air, land, mountains and biosphere so on and so full. Taking a significant way drawing along with the appropriate interests and responsibility from the stakeholders, the regulators, state agencies, market players, managers, economists, consumers, society and public policy makers, useful for making more balanced responses and in building resilient sustainable competences, there is much which are not only analytical, numerical and countable but more, could be reductionist and holistic in the same time, in an integrative approach to understand the complex system by breaking it into the functional components also at the same time studying the parts come together as a whole system in its interconnected and nested layers and relationships (Babalola et al., 2022; Cabrera et al., 2023; Demekas et al., 2020; Espinosa, 2022; Garcia and Ruth, 2015; Herron et al., 2025; Liu & Koivula, 2023; Swapan & Tapan, 1999; Thomas, 2014; Wiegratz et al., 2024).

3 ANALYSIS AND DISCUSSION

3.1 Diffusion of sustainability benefits to getting diverse in the systems thinking approaches

Essentially the experts felt that the starting point of systems thinking for sustainability is in reinventing the concept of sustainability in connecting people and planet with prosperity for an optimal choice to generate increased opportunities, reduce shocks to the economy and narrow the disparity on the whole. A variety of policy and strategy innovations in terms of financing sustainability and making business environment more resilient and durable are evolving based on the collective themes in the economic growth models based on the needs of markets and willingness of states to support sustainable business operations encouraging systems thinking perspectives on sustainability connecting biology with business and resources with economy (Demekas et al., 2020; Herron et al., 2025; Swapan & Tapan, 1999). Giving more time and space to be accommodative has to concentrate on improving the economic opportunities say the income opportunities of households and firms in turning sustainable, providing them with the benefits of better life choices, with measures to improve social and environmental sustainability extending from not only the original poverty alleviation programs earlier supported majorly by state which were the set of economic growth measures taken in an economic and humanitarian way for eradicating poverty from nations which also formed a base of millennium development goals, but in true essence which has to take in a holistic sustainability planning leading towards a total welfare, wellbeing, social security and bio-integrity in a major paradigm sustainability shift where the complexity, multi-layers and interconnectedness are very visible and needs to be recognized collectively.

> *"[...] putting together sustainability, human welfare and ecosystem health in the holistic development narrative in an integrative thinking approach is one to adapt to the evolving*

> *changes, identify root causes of unintended consequences, getting into development moving along the tough situations which has to be followed with a long list of obligations and promises.... In an era of economic reforms for sustainability the talks on adaptive policy reforms and adaptation strategies get to emerge in the front of a systems thinking approach....”*
>
> *“...more concrete measures for managing economic goals and life challenges say something in the likes related to migration and conflicts in the times of mitigating and adapting activities by considering multiple perspectives and interdependencies which have to balance every aspect of a sustainability system [....]”*

3.2 Systems thinking contributing to the advancement of sustainability management

Within the scope of systems thinking for sustainability, some of the experts put forth their expert opinion that the holistic system thinking shifting from a linear isolated view started over the past in the needs to have sustaining growth in agricultural productivity, reducing the use of environmentally hazardous components in many life supporting applications in agriculture and food production and the care to treat waste from production facilities not to drastically affect the agricultural irrigation channels interconnecting environmental, social and food production system in a holistic system thinking. To work at a factory and industry level in finding better and efficient use of fossil fuels in the overall planning and production process served as first baby steps in reducing the ecological and environmental altercations caused by anthropogenic impacts strengthening the concepts of circular and eco-economical business models generally leading to a layered understanding (Box 01). The holistic concept of systems thinking which build around business, trade, economics, management, governance and legal environment developed in the initial years to provide the much necessary support for many of the then evolving ecosystem functions, societal and public good goals which were mostly naive or in silos.

Now in understanding the social system, ecosystem and economic development in one systems thinking, in a layered understanding definitely need the perspectives of total welfare and wellbeing, which is to be safe and secure in the benefits obtained, understanding the interconnectedness through the most visible and immediate incidents say anthropogenic impacts affecting the quality of natural resources, increasing social division, the need for optimal allocation and utilization of resources at many levels. Precisely from business environment the layer understanding develops in the central questions of the economic growth, like in the questions about distribution and accumulation of wealth, regulations, restrictions and putting logical restraints on the flow of capital to have to support powerful and lasting change in the direction of sustainability, use of economic surplus for sustainability ultimately redefining what surplus means in increasing the regenerative capacity, have all blended within the raise of sustainability and sustainable development getting in systems based planning and in forecasting functions in what has to exceed energy and material flows after the maintenance of the system requirements (Carney, 2021; Espinosa, 2022; Midgley, 2023). Sustainability science and systems thinking try to cope up with needs of a grounded economic mechanism in the economic surplus for sustainability which has to be necessarily sustainability mediated one for a just transition to happen with well-planned and manageable sustainable income/growth models, investment models and finance/operational models in the sustaining of infrastructure to ecosystem services all in a rapid transition.

> “[...] Common concern as an idea can influence market and states equally, changing the core ideas about economic capital and surplus in the context of sustainability. It can extend the thought in terms of joint responsibility and cooperation, in action needed through inter-and trans-disciplinary approaches putting systems thinking in the fore.... if common concern and common good are neither common property nor common heritage and if they reaffirm the existing relationship of states and markets with their resources in their sovereignty and limitation, then what context such a concept might hold true....”

> "The impact of common concern has to be that it encourages legitimate interests about the shared resources, shared heritage and shared property beyond geographical boundaries and has to nurture a shared responsibility to assist in contributing for sustainable development ..."

> "...There is a huge lack of expert advices and specialist services to provide long-term solutions to strengthen not just the general resiliency in them but many specific eco-economic and socio-natural resilience having sustainability concerns and components, to keep an integrative system's economic surplus within safe ecological and social limits [....]"

3.3 Collective action, common problems and exploring the rational choices in getting to the commonness in the layered understanding

According to the expert opinion, they suitably felt that it may not be an excess to state that sustainability started from agriculture, food production and in the early concerns about the better utility of natural resources needed for sustaining farm production which on its own had multiple layers putting together resource use, soil health, cropping patterns, farm income, biodiversity and minimize risk. Later the finance system got coupled with the need felt about investment models to encourage sustainable agriculture through research and planning, grew to the agro supply chains, increased in concerns with the farm-firm improvements and in the engagement of private-public partnerships, technology-based vitalization schemes and integration of specific scientific and economic trends in agriculture and rural development. The evolution of policy for development got consistent with the earlier lessons learnt in common goals of scientific agro-food production, farm management and at the equalization of the interests of farm-firm relationship. The search for commonness was to support a national and global level of uniformity by streamlining agricultural products and production like in fertilizers, agricultural equipments, seeds, improving trends in sowing, cropping and processing of the raw materials when the many layered dimensions following rational questions and choices evolved about distribution of the benefits of agricultural growth, abolition of exploitation, encouraging self-help, farmer direct procurement, minimum support prices where the focus in managing the equitability and competition in natural resources, business, economy and society nested in the reality of food production, agro-productive efficiency, distribution and irrigation lines and also reducing the widening of gaps in local and global business and trade systems in agriculture sector which started emerging to a healthier eco-economic and socio-natural welfare which could be said these activities played an early decisive part of proto-sustainable development.

> "[....] Important criteria of planning the long-term thinking for sustainability is to take similarity and uniformity concerns in the needed actions to finding for resiliency, flexibility and equity, to a great extent fairness from the initial days of sustainable development which were to create a conductive atmosphere for many social, political, ecological and economic good goals.... similarities getting in those connected and clustered realities of nature and society..."

> "...with the realization of limited availability of unpolluted natural resources of land, water and air, the idea of how long-time thinking in sustainability can be used in a crucial time of increased migration and conflicts keep expanding.... has to be both profitable and ethical in the layers of ecosystems to social systems to business systems as these all started"

> ".... Flexible and fair systems offering similarity in developing better holistic understanding must be in place not as just restricted to batches of production or shop floor, irrigation channel and food production but to be promoted as a better option which can make competent advancements in the productive designs of sustainability and encouraging resiliency [....]"

3.4 In the interconnectedness, a systems thinking and layered nested awareness and the surrounding reality

In the systems thinking for sustainability science principles of common concern, common good and collective action could be understood as in layers beyond just getting in collective cooperation. Integrating sustainability and economic development requires continuing reforms along the changes happening in the universal provisions of economic growth and development to move towards nested excellence, which could be a better way for common and collective endeavour in providing for basic public services, creating newer opportunities in the business spaces in understanding the core composition of life and liveability, in better healthcare and habitat models moving to and from from business to nature to society with aims to improve collective new competencies which are capacities and new abilities developing from the nested reality (Jones, 2023; Thomas, 2011; Wendling et al., 2018). For example considering as in the cases to deal with migrations and reverse migrations making to a better livelihood in both the rural and urban areas say from the more congested and polluted urban centres to more serene and promising rural centres and to improve the living standards, life conditions to thrive equally to attract more fiscal, human and intellectual capital in managing and balancing the core of common and collective concerns in the transition between urban, rural and especially in ru-urban, where all these interact visibly, which are of course partly eco-economic and partly socio-sustainability spaces.

> "[....] For many years in assigning significant priorities and planning measures about overall development, nature and society were not getting the due importance and the economic growth moved with haste in designing some of the basic policy framework in terms of economic returns and seeking rent in economic capital to natural and human capital..."

> "...in the initial reforms centred on the resources, participation and capacity building in terms of economic contexts labour-cost-capital in the business system, economic efficiency was prioritized. But with the growing maturity and evolution of the concepts of nested reality in an eco-economic socio-natural development model based on welfare and wellbeing of all in a common future for all, prosperity in people and planet contexts keeps expanding in key policy/strategy trends to start emerging [...]"

3.5 Expanding dynamics of resiliency and sustainability in epochal problems leading to a layered understanding in systems thinking

A butterfly effect is very true in a sustainability transition which could be felt from the initiatives minding improvements applying strategies supportive of sustainable resiliency in the process and production to managing competitiveness and diversification at the farther end. Sustainable resiliency is all about the total resources and infrastructure to social, economic and environmental good goals, developing in holistic wellbeing conditions in the overall thematic ways which recently have gained much currency applying multi conceptual level systems thinking. Be it sustainable transition, sustainable development or the sustainable resiliency, the systems thinking on its own is a butterfly effect one which could take integration based on the critical areas and vital functions to establish a well improvised ecological economic and social nexus addressing justice, equity and fair measures one affecting the other. The interconnectedness could be with special types evolving from the isomorphic similarities like the just and resilient transition leading in an unison to a closed economy, resilient economy, organic economy and bio-economy reversing many of the earlier mechanistic economic development trends to make more organic definitions of better life, better nature, better state and better markets (Divanbeigi & Ramalho, 2015; Jackson, 2024; Weaver et al., 2025). The eco-economic and social-sustainability in a systems thinking as the anthropogenic era has brought together, where overall economic reform mean not only a mechanistic fit of reform in benefits of some of the elevated economic profitability and purely economic concerns, but could mean more about the development needs to have ushered in the era of sustainability and resiliency.

To top the development agenda in epochal challenges even small but consistent, collective and structural activities which have become to allow for deeper insights, to build on a comprehensive capacity, help with better

planning in social, environmental, economic fronts for people, planet and prosperity-based business and development models which are the resilient butterfly effect. To strengthen significant and transformative outcomes in the achieving of sustainable development goals through proper placement of policy and handy strategies is to equally help development of sustainable value management and making layered thinking based governance practices in sustaining markets and flourishing states with contributory business and economic models building knowledge and comprehension in progressive stages one leading to the other in understanding the basic fundamentals of integration in many complex levels, setting a collective sphere in the details all in a nested reality demanding for a layered understanding (Box 2).

> "[....] resilient and sustainable approaches connecting with natural resources with the wants and needs are a part of great life question reeling before us amidst a world of uncertainty, ecology and society-based abnormalities where the triple bottom line of layers have to be taken seriously...., sinking islands, danger to bio-integrity, extinction rates, many conflicts having geo-chemical reasons.... through the relevant demands of collective actions are gaining momentum not just in a butterfly effect but as in the beauty of a sustainable butterfly on its own...."
>
> "...attaining sustainable development goals becomes very tedious and demands for a futuristic approach with many standards, innovative solutions increasing the resilient capacity in sustainability which have to be made with supportive policy and strategy to address this issue of not only at a national or regional isolated scale but truly global-local [....]"

3.6 Nothing lives or leaves in isolation – The systems thinking and butterfly effect are intergenerational and layered woven one over the other

Butterfly effect denotes the transformative change that shall happen in the style of many small-scale changes leading to an expansive increment. The butterfly effect is a metaphor adopted by atmospheric physicists and environmental scientist to describe the very sensitive interdependence of weather systems to earth systems where even a smallest change in existing conditions might cause dramatic changes in incremental levels. The experts opined that the process of sustainability transition studied in the metaphor of butterfly effect not only denote physical, mechanistic or any process changes but from the shared interpretations of the layered understanding as a core idea about the holistic sustaining condition of earth, natural and social systems. Leading towards greater good along with the business and economics system in the creation of a relational agency which shall allow for the possible expansion of interpretations of events, any smaller in size though occurring in some distance one part of the system largely affecting the activities in some other part how farther it may be but definitely causing a massive impact (Cechvala & Ganson, 2024; Jones, 2023; UNCTAD, 2022; Woodly, 2022). Sustainability and the capability to turn sustainable demonstrate a powerful force of the need in finding similarities about how the interwoven relationship takes on to shape the outcome which has to be safe and secure considering the core concepts in a layered understanding. The intergenerational sustainability has to be applied to capture the relational components in the long value chains to epistemic constructs and to design more effective policy and strategy planning, which has to prioritize just and equitable sharing of resources, participation of all stakeholders, fostering positive relationship in the stake-holder ship developing from the layered understanding of the nested realities of nature, society, economy and business environment.

> " [...] The sustainability problems are increasingly associated with planning better management of resources, planning of the resource utilization and the infrastructure support that are needed for long-term strategies connected in a butterfly effect....what is needed at a geographical, social and economical scale is very large than what could be possibly planned with all means at hand now...."
>
> "...The sustainable development agenda looks to gain resilient characters to develop standards through systems thinking, engage fruitfully in different sectors and create extended responsibility,

> more cooperation and participation, dealing with newer kinds of issues, may be green or brown, may be those distant plans connected with financial welfare say in the critical concerns of sovereign debt, public debt and welfare ...."
>
> ".... resilient flexibility in the combination of policy and strategy moves further through main sustainability issues addressing how to combine the interests of environmental, social, economic and capital systems to create a set of decent economic and sustaining life-liveability balance, better natural condition, equitable benefits, affordability, costs and anticipation of more quality growth in the nexus of nature-economy-society [....]"

3.7 Sustainability systems and long-term resilience

Industrialization or globalization is relatively a recent phenomenon compared to the kind of search for self-sufficiency which many nation states, empire states were searching and trying to attain in agriculture and food production, prosperity and richness from the historical times. Many of the great wars were fought in the precincts of finding resources and attaining self-sufficiency. Industrialization could be seen as a recent logical extension in this plane followed by globalization. The techniques of sustainable resource management started long back at least with the aspirations and dreams which helped building empires. What resources for food and agriculture was to the earlier civilizations, sustainability is same with the principles of common concerns and collective actions to the modern times premised on a common responsibility, to protect, to not harm, take a collective and particular interest in the natural and social resources. The scenarios and estimations should stand for the consequences, in concerns and questions leading to sustainable development (Box 3). The industrial sector and the economy would lose some input somewhere, but somewhere in some other way there will be greater gain in the sustainable development, the details of calculations to measure growth and development certainly have to consider the estimates of gain and loss not just with economic or profit indicators but with common and collective benefits extending in public, social and natural good in intergenerational and intra generational scales.

> "[....] in the management, economics and financing of programs and projects which are need to be nurtured, for related risks turning to values and opportunities created, the business decisions, impacting livelihood, intangible incentives in the eco-environmental sustainability category are lined in the asset building and economic surplus sharing questions which have to be certainly there to support than to deplete, to be managed for distributed....fair and equitable ones creating the very new common good philosophy for sustainable development...."
>
> "...Resiliency and flexibility supported by policy reforms may be useful to reduce many macro-critical risks and give the needed preparedness, augmenting the business environment spaces creating financial and operational buffers emphasising long-term viability to work with and to mitigate the sustainability centric risks which are arising from structural challenges, have to be understood in layers in the lines of sustainable development [....]".

CONCLUSION

The research study added much new significance in very certain ways nested reality contributing to the furthering of layered understanding about what sustainability is and why it matters a lot in the times of epochal changes faced today. This paper finds sustainability science and systems thinking to thrive in maintaining healthy ecosystems, to having social equity and bio-integrity in economic growth which is considered as the three pillars of life and liveability. Sustainable development could be one which values social and natural resources as a very important resource group along with the economic and capital resources. The concept of sustainable and resilient economy develops with the systems thinking balancing conditions of competing needs that have to create ample spaces for re-generation, re-creation and re-using abilities to have healthy natural resources, thriving society and

economy which are also the sources of finding reasons for more resiliency and common good in collective sustainability. In a sustainable economy, markets and business operate in harmony with the nature and society.

Box 01 Sustainability transition in making global value chains: Major contributors affecting business activity chain turning sustainable

1.1 External

Environmental
Political
Social
Cultural

Major triggers of disruption	
Environmental	• Natural Disasters
	• Extreme weather events
	• Sudden events like pandemic
	• Depletion of natural resources
Geopolitical	• Political unrest and conflicts
	• Protectionist and liberal swings
	• Armed conflicts and exploitation
	• Geographical divisions
	• Illicit non-trade and criminal flow of chains
	• Intellectual piracy or shielding?
Social	• Price fluctuation and shocks
	• Social exploitation and neo-slavery
	• Global energy transition gaps
	• Environment degradation-based refugees and migration
Cultural	• Trans-border exploitation of natural resources
	• Green taxing and green washing
	• Questions around ownership and use of natural resources
	• Consumer markets, buying behaviour, over exploitation of resources

1.2 Internal

Supply and Demand
Regulation and Governance
Institutional capacity
Business System
Business Process
Transport Networks

1.3 Different sources of Principal Risks

Economy Environment Society
Policy Change
Human Development
Perception of Values

Service Quality
Availability of Replacement
Supply Capability
Information and Knowledge sharing

1.4 Factors important in systemic risk management

Needs of Business Environment
Policies from Government Actions
Compliance, Standards and Metrics
Risk Legislation and Incentives
Quantification of Metrics
Data and Information, Sharing Mechanism

1.5 Systemic sustainable supply chain stakeholder engagement

Manufacturers
Suppliers
Logistics Operations
Transit Hub Operations
Retailing Network
Consumer Hubs
Governance & Regulations

Box 02 The Value Chain Development

- Identify some of the binding constraints that hamper sustainability and resiliency
- Build strategic capacities through value chain analysis for adaptation and mitigation
- Supporting investments, sector development around sustainable development goals
- Learning and unlearning more about the business relationships along the value chains
- Ecological, social and economic potential to foster more resilient supply chains
- Develop pilot clusters along the value chains combining standard management process
- Follow up with operational engagements along with identifying potential strong positive effects on sustainability centred business models
- Consult with the state, markets and institutions in improving coordination with global, regional and local aspirations
- Supply, demand, cost structures and value chain structures rearranged
- Localization, specialization, integration along the value chains

2.1 The Axle of Strategic Value Chain

- Quality
- Volume
- Standard
- Price
- Safety
- Transparency
- Traceability
- Viability
- Acceptability
- Others:Socio-economic Success factors

Box 03 Mapping an Ideal Value Chain

- Product and branding centred around sustainability and resiliency
- Determining the sustainability characteristics of the value chain components
- Being fair and competitive providing equal opportunity all along
- Identifying strategic segments and clusters
- Concentration of each of the activities in the mitigation and adaptation
- Relative knowledge and use of clean energy strategies
- Measuring the reliance on restoring capacity of natural resources
- Maintaining the safety link between nature, business and society around

3.1 Enhancing competitiveness in the Value Chains

- Improving the legal and Institutional framework
- Improving market development for global value chains
- Knowledge creation and creation of brand image for sustaining efforts
- Aligning logistics around energy efficiency
- Ensuring the quality and sustainability standards
- Development of new technologies and process optimization
- Introducing more accessible financial products
- Coordination among the stake holders

3.2 Overview of the phenomenon about the business activity chain for sustainability - The need for value in value chains

i. Extremely unpredictable socio-natural conditions
ii. Recent disruptions and shocks in business and trade
iii. Lack of know-how about the need to address the environmental degradation
iv. Lack of investments, credit support and technology support at the supply ends
v. The need to preserve the wealth of natural capital inherited for many millenniums
vi. Intersection of trade and development, trade factors tied to growth,
vii. Development, economic growth and prosperity
viii. Improving the clean criteria and advancing clean development
ix. Potential ambitions set by global and local development plans
x. Diversification, integration, vertical and horizontal expansion of value chain
xi. Meeting the requirements of markets without exploiting nature and society
xii. Strengthening sector specific and segment specific attractiveness
xiii. Centring clean growth, safe development activities around the ethical, moral and emotional values

REFERENCES

Adams, W.M. (2006). *The Future of Sustainability – Rethinking Environment and Development in the Twenty-First Century.* Report of the IUCN Renowned Thinkers Meeting, 29-31 January 2006, IUCN
Amoako, G.K., Adam, A.M., Arthur C.L. & Tackie, G. (2021) Institutional isomorphism, environmental management accounting and environmental accountability: a review. *Environ Dev Sustain* 23, 11201–11216 (2021). https://doi.org/10.1007/s10668-020-01140-y

Babalola, M. T., Bal, M., Cho, C. H., Garcia-Lorenzo, L., Guedhami, O., Liang, H., ... & van Gils, S. (2022). Bringing excitement to empirical business ethics research: Thoughts on the future of business ethics. *Journal of Business Ethics*, 180(3), 903-916.
Baldwin, C., Marshall, G., Ross, H., Cavaye, J., Stephenson, J., Carter, L., Freeman, C., Curtis, A., & Syme, G. (2019). Hybrid neoliberalism: Implications for sustainable development. *Society & Natural Resources*, 32(5), 566–587
Boda, C. S., O'Byrne, D., Harnesk, D., Faran, T., & Isgren, E. (2022). A collective alternative to the Inward Turn in environmental sustainability research. *Journal of Environmental Studies and Sciences*, 12(2), 291-297.
Browder, G., S. Ozment., I. Rehberger Bescos., T. Gartner., & G. Lange. (2019). *Integrating Green and Gray: Creating Next Generation Infrastructure*. Washington, DC: World Bank and World Resources Institute.
BSDC (2017). *Ideas for Action for a Long-Term and Sustainable Financial System*, Business and Sustainable Development Commission.
Bu, Maoliang., & Marcus, Wagner. (2016). Racing to the Bottom and Racing to the Top: The Crucial Role of Firm Characteristics in Foreign Direct Investment Choices. Journal *of International Business Studies* 47 (August): 1032–57.
Cabrera, D., Cabrera, L. L., & Midgley, G. (2023). The four waves of systems thinking. *Journal of Systems Thinking*, 3, 51.
Carney, M. (2021). *Value(s): Building a better world for all*. HarperCollins Publishers.
Cechvala, S., & Ganson, B. (2024). Systems perspectives on business and peace: The contingent nature of business-related action with respect to peace positive impacts. *Journal of Business Ethics*, 194(3), 523-544.
Demekas., Dimitrios G. Nerlich., & Anica. (2020). Creating Domestic Capital Markets in Developing Countries : Perspectives from Market Participants, *International Finance Corporation*, Washington, DC.
Divanbeigi, R., & R. Ramalho. (2015). Business Regulations and Growth. *Policy Research Working Paper No. 7299*, World Bank, Washington, DC.
Duchen, C. (2024). *Women's rights and women's lives in France 1944-68*. Routledge.
Espinosa, A. (2022). *Sustainable self-governance in businesses and society: The viable system model in action*. Routledge.
Gamarra, AR., Lechón, Y., Escribano, G., Lilliestam, J., Lázaro, L., & Caldés, N. (2022). Assessing dependence and governance as value chain risks: natural gas versus concentrated solar power plants in Mexico. *Environ Impact Assess Rev* 93:106708.
Garcia-Castro., Roberto., & Ruth V. Aguilera. (2015). Incremental Value Creation and Appropriation in a World with Multiple Stakeholders. *Strategic Management Journal* 36 (1): 137–147. https://doi.org/10.1002/smj.2241
Hernández, M., & Muñoz, P. (2022). Reformists, decouplists, and activists: A typology of ecocentric management. *Organization & Environment*, 35(2), 282–306.
Herron, R. J., Mendiwelso-Bendek, Z., Salinas Navarro, D. E., Vilalta-Perdomo, E., & Weaver, M. W. (2025). The resonance of Mike Jackson's work with the use of systems ideas in community operational research. *Systems Research and Behavioral Science*, 42(1), 51-68.
Jackson, M. C. (2024). Critical systems thinking: A practitioner's guide. John Wiley & Sons.
Latour, B. (2022). *Gaia as a problem of social theory*. Cambridge University Press
Jones, G. (2023). *Deeply responsible business: A global history of values-driven leadership*. Harvard University Press.
Liu, M., & Koivula, A. (2023). Greed doesn't grow on trees: the indirect association between proenvironmental behaviour and materialism through adolescents' psychological entitlement. *Young Consumers*, 24(1), 1-17.
Maphosa, F., & Maunganidze, L. (2021). Business and Society: An Introduction. In Corporate Citizenship: Business and Society in Botswana (pp. 1-30). *Cham: Springer International Publishing*.
Martini, A. (2021). Socially responsible investing: from the ethical origins to the sustainable development framework of the European Union. *Environment, development and sustainability*, 23(11), 16874-16890.
Midgley, G. (2023). The systemic intervention approach. *Journal of Systems Thinking*, 1-24.
Swapan, Dasgupta., and Tapan, Mitra. (1999). On the Welfare significance of National product for economic growth and sustainable development. *The Japanese Economic Review* Vol. 50, No. 4, December 1999

Thomas, Cottier. (2011). Confidence-building for Global Challenges: *The Experience of International Economic Law and Relations*, Swiss National Centre of Competence in Research (NCCR) Trade Regulation, World Resources Institute, Washington.
Thomas, Cottier. (2014). Renewable Energy and WTO Law: More Policy Space or Enhanced Disciplines? *Renewable Energy Law and Policy Review*, *5*(1), 40–51.
UNCTAD. (2020). *How Public Pension and Sovereign Wealth Funds Mainstream Sustainability: Practices of the frontrunners and a proposed integration framework.* UNCTAD.
UNCTAD. (2022) *Sustainability integration by public pension and sovereign wealth funds.*
UNEP. (2017). *Financing sustainable development: the role of sovereign wealth funds for green investment.*
Wan Rosely, W.I.H., & Voulvoulis, N. (2024). System Thinking for Sustainable Water Management: The Use of System Tools in Sustainability Transitions. *Water Resource Manage* 38, 1315–1337. https://doi.org/10.1007/s11269-023-03723-6
Weaver, M., Fonseca, A. P., Tan, H., & Pokorna, K. (2025). Systems thinking for sustainability: shifting to a higher level of systems consciousness. *Journal of the Operational Research Society*, 1–14. https://doi.org/10.1080/01605682.2025.2486698
Wendling, Zachary., Emerson, Jay., Esty, Daniel & Levy, Marc & de Sherbinin, Alex. (2018). *Environmental Performance Index (EPI)*. New Haven, CT: Yale Centre for Environmental Law & Policy. 10.13140/RG.2.2.34995.12328.
Wiegratz, J., Salverda, T., & Lanzano, C. (2024). Moral economies of capitalism in Africa. *Critical African Studies*, 16(1), 1-16.
Woodly, D. R. (2022). *Reckoning: Black lives matter and the democratic necessity of social movements*. Oxford University Press.
You, L. (2024). The impact of social norms of responsibility on corporate social responsibility short title: The impact of social norms of responsibility on corporate social responsibility. *Journal of business ethics*, 190(2), 309-326.

Esta licença permite que os usuários distribuam, remixem, adaptem e desenvolvam o material em qualquer meio ou formato apenas para fins não comerciais, e somente desde que a atribuição seja dada ao criador.