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Decovidization through Rurbanization: The Re-development Option for Sustainable Energy Access

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ABSTRACT

As the energy infrastructure is re-orienting to cater to de-covidization, this paper posits the rurbanization option. De-covidization is defined as actionable options to migrate from the corona virus pandemic, seen through the lens of sustainable energy access. De-covidating would imply ‘build and retrofit-back better’ with respect to energy access. De-covidization has implications on scale, locale, alignment for energy access in the rurbanized format. The locale and reach of rurbanized energy access need to blend with living habitat. This paper is on the construct of de-covidization through grass-roots up energy access options through an innovation, rurbanization. Rurbanization refers to rural-urban aligned resource corridors that offer potential for sustainable energy access. Rurban interface is a metric that assesses the possibility of redesigning and rescaling carbon proof energy access options. There is sparse literature on the concept of rurbanization that hybridizes benefit incidence and network views on urban-rural interfaces. The focus is sustainable energy access. The paper conceptualizes rurbanization to bridge the gap in the research that emanates from the propensity of urban megapolises to create clutter, which results in degraded ecology, air pollution, health hazards, lower quality of life, gender inequity, and vulnerability to natural disasters. This has exacerbated during the current global pandemic. As de-covidating initiatives are unleashed, the energy access would need appropriate and manageable scale. Urbanization cannot be sustained without a robust rural interface.

Keywords: Rurbanization, De-covidization, Energy Access, Ecology-driven Shared Value Creation, Water-waste-energy Metrics

JEL Classifications: Q01, O35, R580

1. INTRODUCTION

De-covidization is defined as agility to shift away from the coronavirus pandemic, seen through the lens of sustainable energy access. De-covidating needs several corona-unlocking innovations. Energy access needs to be decentralized to match the cocoon-like safe-habitats, in a process of rurbanization. would imply ‘build and retrofit-back better’ with respect to energy access (Rokhmawati and Gunardi, 2017). De-covidization has implications on scale, locale, alignment for energy access in the rurbanized format. Rurbanization refers to rural-urban-aligned sustainable development, is sparsely addressed in the literature (Balk, 1945; Olariu, 2010; Qin and Yang, 2014). The locale and reach of rurbanized energy access need to blend with living habitat.

This conceptual proposition draws inspiration from the possibility of rural-urban aligned collage that evolve on hybrid and tangibly-ethical building blocks that integrate innovation, entrepreneurship, and re-development (Kundu and Lahiri, 2018). This concept can assess rural and urban isolation that is burgeoning with limited focus on environmental and social integration with focus on personalization and safety (Bag and Anand, 2015; Bhati et al., 2014). Potential benefits of redesigning, retrofitting, renewal, and resilience of rural-urban habitats are equitable and ethical growth (Rajasekar et al., 2018). Methodologically, this review evaluated evidence within the resilient, multi-nodal, and multilateral configurations of urban-aligned rural eco-systems that foster well-being of place (Painter et al., 2016, Porio, 2011). Rurban spaces or habitats present an opportunity, as processes, operations, and

supply chains are not bound by territorial boundaries. Given this context, the role of ethics and good governance together exist in distributed development, as is the core tenet in rurbanization. Distributed development is paramount given the exacerbation of air pollution, occupational health, lower quality of life, gender inequity, and vulnerability to natural disasters.

This review also evaluated whether the societal, environmental, and economic fabric of rurban clusters are intensely integrated based on the relational concepts of space and place that have implications for planning, as the rurban-fabric tends to be responsive to broader challenges (Graham and Healey, 1999). Rurbanization intent enables organic institutions that are responsive for reforms and reviews. Their internal architecture, as well as external networks and alliances, tend to integrate economic, societal, environmental, and sustainability determinants, such as vulnerability to disasters and susceptibility to climate issues. Given these intended outcomes, it is vibrant urban megapolises can not sustain their smart city status without a smart urban and robust rural interface (Becchio et al., 2016; Hiatt and Park, 2016).

The notion of rurbanization or urban-rural inter-relatedness is undergoing structural change with regard to polycentric development and contextual interrelationships (Bengs and Zonneveld, 2002; Kasemsap, 2014). Such structural change is observed in the disaggregation mode that aggregates divergent yet inter-related preferences in urban and rural settings that emerge as a synergy (Grigoroudis and Siskos, 2002). A case in point is the regional competitiveness derived from rural-urban aligned tourism (Ferreira and Estevao, 2009). While rurban watershed principles adapted for the design of integrated water policies support the rurban interface, an integrated rural-urban aligned socio-economic scenario has greater efficacy (Karmaoui et al., 2016). Furthermore, the rurban bank of resources, opens a broader scope of innovation with an emphasis on process innovation that fosters partnerships promoting ethical sharing of resources and abates risk (Del Giudice et al., 2016).

Food consumption, distribution, and production as components of an integrated urban policy for food security unfurl ethics and good governance for rurban enterprises as they derive a sense of

responsibility and practicality (Demidenko and McNutt, 2010). This supports the rationale that rurbanization is at the intersection of ethics and good governance. Overarching ethics and good governance empowers flexibility of rurban initiatives, promotes social justice, and provides a sense of equity of shared urban and rural resources (Rocha and Lessa, 2009). These propositions are multifaceted and thus require a multi-perspective, interdisciplinary literature review.

2. LITERATURE REVIEW

The rural-urban interface literature spans the following topics: (i) Land use – energy integration policy, (ii) low-carbon energy, (iii) energy access, (iv) environmental justice, (v) triple bottom-line energy management, and (vi) substantive energy access rationality. Table 1 shows representative and recent studies that corroborate with five research gap sets. The rurban interface landscape calls for the redefinition of land use policy (Alberti et al., 2003; Zérah and Landy, 2013; Stone, 2009). Studies indicate that policy reform at rurban interfaces spurs private sector funding, builds resilience for climate smart food supply chains, and promotes an institutional environment that fosters entrepreneurship (Fowler et al., 2016; Reardon et al., 2016; Williams and Gurtoo, 2016). Self-regulation is an emerging form of environmental justice to supersede normative pressure (Liotta, 2016). We propose that policy regime should create such an ambience that spurs self-regulation initiatives.

Rurban interfaces also foster venture capital of responsible investments in innovative and adaptive technology for clean energy, quality water, and reusable waste processing systems. Rapid urbanization places incessant pressure on civic amenities, goods, and services mobility. Sustainable smart cities are symbiotically dependent upon the rural food-basket, enthusiastic manpower from rural habitats, and clean water from rural reservoirs and waste migration to non-urban sites. Approximately 80% of the population live in rural areas in Asia Pacific, with agriculture contributing to about 35% of the GDP. Given the need to implement Sustainable Development Goals (SDGs) without losing economic prowess, urbanization rate has surpassed 50% and agriculture accounts for less than 10% of the GDP.

Table 1: Value propositions for de-covidization through rural-urban energy access

Need to rurbanize during decovidization	Value propositions for de-covidization through rural-urban energy access	Linking societal, environmental, and economic rurban energy access with decovidization
Land use and Energy Integration policy	Interstitial shared value institutional framework	Economic
Low Carbon Energy Access Management	Access to infrastructural support services at rurban interface Adaptive, habitat-specific, and locally maintainable innovative technology transfer	Societal Environmental
Environmental justice	Appeal for value-added returns for investors along with ease of access to finances Capacity building and knowledge networks for rurban education Effective representation of micro-, vocational-, and SME business interests	Economic Societal Economic
Triple bottom-line energy management	Speed of start-up within an ethical, proactive, public-private-community compliant SME Global-regional-national market linkages	Societal, Environmental, and Economic

Rurban interfaces encourage collective entrepreneurial efforts, as there is novelty and business acumen to chart new markets. Collective identity creates conditions for collaboration to thwart external threats (Hiatt and Park, 2016). Urban hotspots, non-stop rural to urban migrations, and a lack of robustness for rural infrastructure defines the research context for rurban interfaces. Exponential demand for rural food supply poses important stress on retrofitting non-alluvial land and waste lands. Simultaneously, there should be minimum impact on the environment with retention of rural ambiance. Bio-diversity parameters, water adequacy, and waste utilization are important baseline measures for sustainability (Hiner, 2015; 2016). Environmental justice presets the issues at the fringe in rurban interface (Sharma-Wallace, 2016).

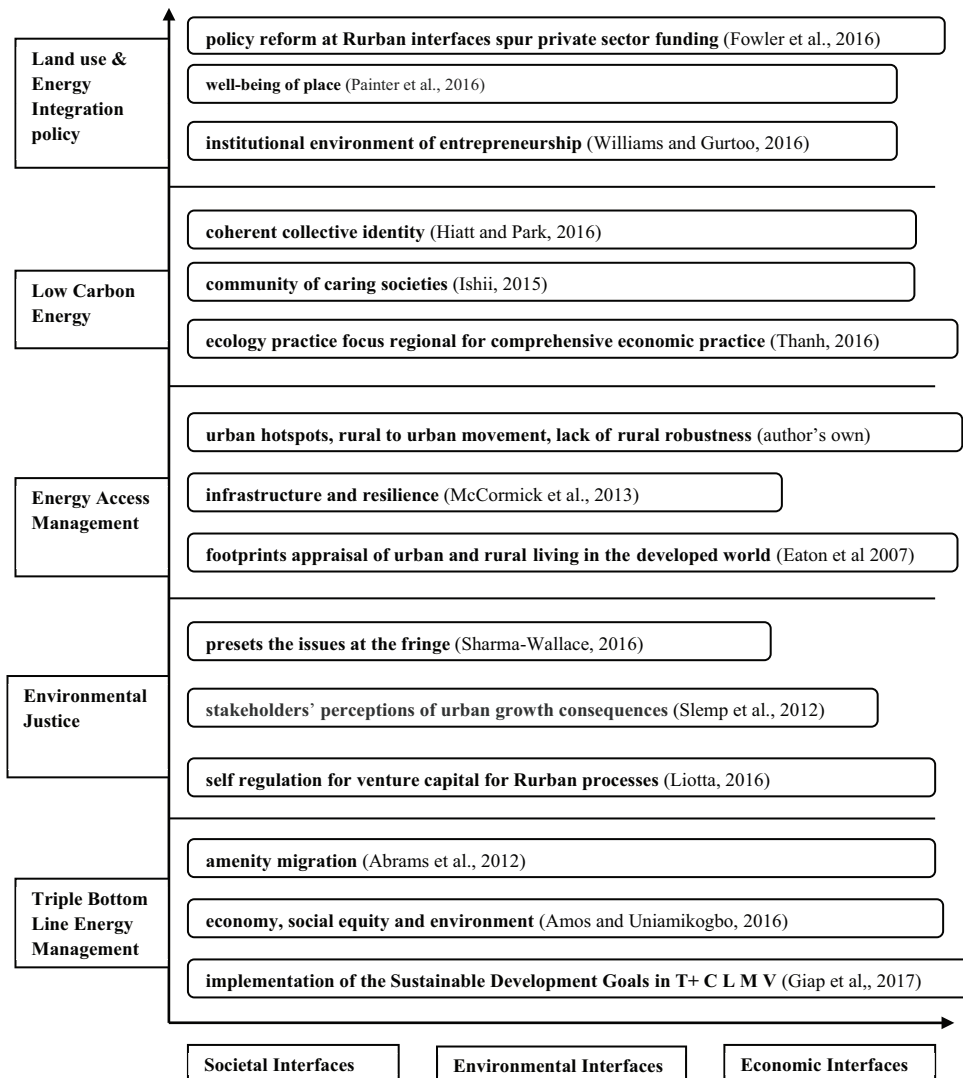
Rural-urban land use is exemplified by the innovation water cluster that mainstreams sustainable development in the innovation economy, addressing social objectives, enhancing social-economic welfare, and fostering eco-competitiveness (Shishcan and Kaim, 2017) (Figure 1). The ethical foundations of rurban development are largely normative and viewed as an ecological practice that provides inter-generational justice and envisage

economic and social progress compatible with environmental preservation that blossoms as an ongoing interactive process of social dialogue and reflection (Pülzl and Wydra, 2011). Water energy waste management in the rurbanization context is a phenomenon of diffusion dynamics (Figure 1). Environmental justice is ascertainable through the co-creation of rural and urban communities to contribute to sustainable values (Samant et al., 2016). Triple bottom-line management combines environment, innovation, and entrepreneurial initiatives to rural and urban alignment (Fernandes et al., 2017) (Figure 1).

Table 1 summarizes associations between five strands of literature trajectories with value propositions with respect to societal, environmental, and economic interfaces. Shared value propositions for rurban interfaces serve as crucial link levers (Meyer et al., 2012). Sustainability and triple bottom-line inter-relatedness is relevant for rurban interfaces to co-generate economic prowess, social equity, and environmental sustainability (Amos and Uniamikogbo, 2016).

Human-centered skill enhancement is fostered in the ambiance of balanced ecology (Ishii, 2015). The architecture for this concept

Figure 1: De-covidizing for Rurbanization with respect to energy access interface addressing social objectives, enhancing social-economic welfare, and fostering eco-competitiveness



is parallel with multilateral cooperation (Finn and Kobayashi, 2020). The spirit of rurban interfaces is in creating a community of caring societies. Four approaches needed to fill interstitial gaps in the rurban space are as follows:

(i) caring societies in both urban and rural communities, (ii) societal leverage through capacity building on human resources with societal protection safeguards, (iii) ethics and governance for sustainability, and (iv) policy dynamism. Institutional theory informs institutional entrepreneurship, which explains varying degrees of entrepreneurial readiness to fulfill the interstitial shared value at rurban interfaces (Williams and Gurtoo, 2016). Societal, environmental, and economic alignment between rural-urban interfaces helps retain a distinctive identity yet connect institutions, financiers, and skill-pools, resulting in balanced sustainable and differentiated growth; a key facet is the level of dynamics to maintain the equilibrium at the rurban interface (Fernandes et al., 2017). Growth in urban centers loses optimality and soon become hot spots, as the square-kilometer area remains more-or-less constant, yet growth continues; thus, maintainability suffers and the dynamic component of urban rejuvenation becomes lost.

3. RESEARCH ISSUE: THE NEED TO REDESIGN INTERFACES

Predominantly, interfaces have transitional character with respect to the dynamics of space, ecology, and ethics. The predominant issue is inequity of adjacent habitats on economic, societal, and environmental dimensions. The divide between rural and urban centers is becoming blurred with increased connectivity (Dabson, 2007). The scope to re-conceptualize the rural-urban interface creates emerging opportunities, such as distributed development and reversing rural to urban migration (Dandekar and Ghai, 2020). Interface rejuvenation represents a substantive need for terrestrial conservation, resulting in small reserves, landscape alteration, and retention of biodiversity through new planning approaches, such as rurbanization (Shafer, 2008). Interfaces include wilderness areas with avian biomass and wildlife corridors (McDonnell and Pickett, 1990). Rurban interfaces help seek new configurations and formats of the rural-urban fringes (Sharp and Clark, 2008; Brown and Shucksmith, 2017). Public and governmental resources are sparse to effectively maintain interfaces with rural and semi-urban architecture. The rurban interface could be analogous to interstitial gateways that bring equilibrium to societal and environmental permeability and economic fluidity (Han et al., 2017). The rurban interface also serves as a gateway for symbiotic entrepreneurship with ethical and good governance interdependencies (Williams and Gurtoo, 2016). Concerns such as urban hotspots, rural to urban movement, and lack of rural robustness can be addressed through the redesign of infrastructure for interface resilience (McCormick et al., 2013).

This leads to the first research value proposition:
What proactive and positive role of urban-rural interfaces can contribute to the creation of societal, environmental, and economic shared values?

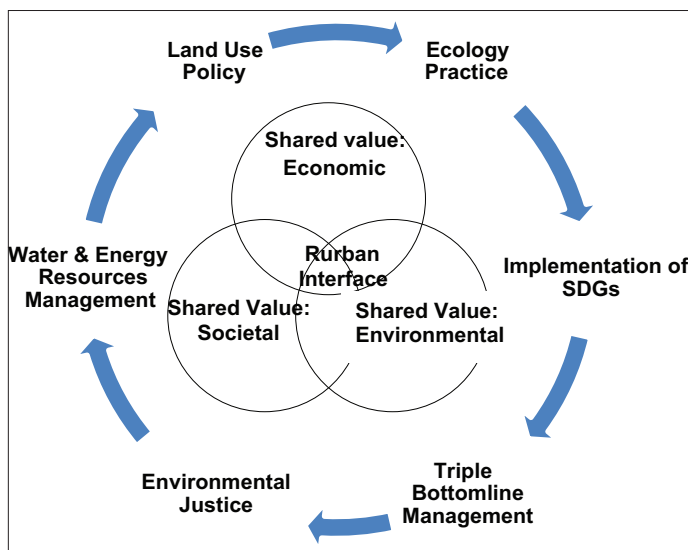
Footprint appraisal of urban and rural living spaces in the developed world include enabling factors to rurban interfaces (Eaton et al., 2007). Ethics and good governance may be construed as a set of voluntary standards for sustainability to retain rural-urban aligned sustainable values. Characterized by flexibility, rurban communities optimize participation, ensuring quality of the interface to preserve the ecological proactive and moral ownership spirit, as ethical ownership is reflected in self-regulation for venture capital of rurban processes (Blewitt, 2014; Liotta, 2016). The ethics and good governance canopy justifies self-reliance that is assessed at rurban interfaces strengthened through alliance management (Ireland et al., 2002). Smart urban interfaces integrated with robust rural interfaces are envisaged as corridors or conduits to create equilibrium for water flow, waste flow, energy flow, human mobility, livestock mobility, food mobility, tourism mobility, and education mobility, representing coherent collective identity (Hiatt and Park, 2016).

This leads to the second research value proposition:
What proactive role can partnerships, alliances, and cross-border segments of value chains play in ascertaining the ethical and good governance aspects of the desired outcome for smart urban interfaces integrated into robust rural habitats?

Creation of smart urban cities integrated with robust rural interfaces adopts a methodology within the architecture of the rurban interface framework that comprises an outer circumference (independent variables) and an inner core (dependent variables). The benefit incidence analysis methodology estimates unit value, identifies stakeholders, aggregates users into groups, and calculates benefit incidence (Chakraborty et al., 2016). The benefit incidence approach calculates preferences in rural and urban integrated settings. The network view on urban-rural interface assesses innovation networks and knowledge clusters that could be contoured as the rural-urban matrix (Wang et al., 2020).

Figure 2 depicts the co-concentric configuration of the rurban interface that is characterized by interactive complexity of benefit incidences, shown in the outer circumference, and flexibility of

Figure 2: The rurban interfaces framework of rurbanization



systems to leverage shared values, represented by inner clusters of economic, societal, and environmental shared values. The rurban interface methodology demonstrates that two sets relate as networks of benefit incidence, as well as innovation clusters (Cattivelli and Rusciano, 2020). The desired outcome is to transform the proliferation of urban hotspots and fading rural entities to a well-balanced rural-urban shared-value habitat. The attributes to assess the urban-rural interface that contribute to societal, environmental, and economic shared values include land use, ecological practices, water energy waste management, environmental justice, and triple bottom-line value indicators.

Benefit incidence analysis leads to urban-rural reciprocal action, congruence, and commutual measures that value triggers, intertemporal partnerships, distributive alliances, cross-border nodes, and gender-equity value chains. These benefit incidences are deterministic for grassroots implementation of SDGs, and the benefit incidences of urban-rural reciprocal actions can catalyze the diffusion process to economic, societal, and environmental aggregation or stock of shared values. Similarly, urban-rural benefit congruence develops parameters for multilateral, multinodal, multimodal, and multilevel elemental values that can be broken down into environmental, economic, and societal components (Ozturk and Acaravci, 2010). This methodology emphasizes co-evolution of benefit incidences along with corresponding innovation networks and knowledge clusters that enable societal, environmental, and economic value creation.

3.1. Methodology on the Role of Ethics and Good Governance for benefit Incidence, Innovation Networks, and Knowledge Clusters

The next step in this methodology is to investigate how ethics and good governance bridge benefit incidence and innovation networks and knowledge clusters. Norms that motivate rural urban initiatives that uphold the core spirit of the sustainable development goals are based primarily on ecological literacy (Orr, 1992; Hausman et al., 2016). Good governance features in this context of catalyzing rural-urban innovation blends are shared by ownership patterns and, affiliated regulatory frameworks to permeate relational good governance and convergence-based approaches (Daidj, 2016). When the rural-urban vicinity is perceived as a collection of resources, ethical competence is

based on trans-territorial logic to generate benefit incidence leading to network and clusters (Hjalager, 2017). Equitable power distribution and the shaping of smooth allocation of resources leads to institutional strengthening at the interfaces (Hope, 2017). Good governance of the rural-urban interface could reduce migration, as ethical realization strengthens a sense of place as a preference to agricultural landscape and urban greens. A sense of good governance derives from habitat heritage identity, well-being ownership, and sustainability intent. The rurban interface bridges benefit incidences to uncover substratal stimulus and create societal, environmental, and economic innovations. Smart city lure and megapolis pull make inroads to rural communities.

This review contributes to the balance and alignment of socio-enviro-economic dynamics in preparation to implement SDGs (Ngo and Brklacich, 2014). Societal, environmental, and economic dimensions spur open innovation practices that lead to partnership, collaboration, and open innovation. Relational mechanisms breed community governance that are marked by ethical interventions and co-envision of polity (Moore, 2006). The rural-urban commitment and trust are based on informal mechanisms; the relational governance instills trust-based organic institutions that are continually exposed to challenges, such as vulnerability to disasters, susceptibility to climate issues, and air quality degradation.

3.2. Analysis: The Rurban Interface Align-ability Matrix

Table 2 analyzes bridging and enables a role played by ethics and good governance to identify peripheral parameters, namely, land use, ecology practice, water and energy resource management, environmental management, triple bottom-line management, and implementation of SDGs. Benefit incidences must interface with societal, environmental, and economic innovation networks and clusters (Figure 2). Benefit incidence criteria, such as urban-rural reciprocal action, can impact the innovation network and knowledge cluster through societal bio-covers. Congruence and commutual outcomes are applicable for marine biodiversity practice clusters by appropriate redesign and retrofit innovation that requires integrated eater energy waste ethics for minimal benevolence.

Table 2: Rurbanization align-ability matrix

Benefit incidence criteria	Innovation networks and knowledge clusters	Rurbanization realization	Environmental good governance
Urban-rural reciprocal action	Societal bio-cover networks	Societal ecology practice	Interdependence alternatives
Congruence and commutual measures	Marine biodiversity practice clusters	Water energy waste management	Minimal benevolence
Intertemporal partnerships	Rejuvenation of soil conditions through knowledge sharing	Environmental justice	Commitment to utility
Distributive alliances	Intermittent precipitation trends prediction	Equitable patterns	Environmental value added
Cross-border nodes	Geographic heterogeneity	Coopetition: cooperation and competition	Transitivity
Gender-equity value chains	Trust and value convergence	Equitable appropriation of competencies	Voluntary choice
Value triggers	Coevolution of pluralism	Triple bottom-line value indicators	Welfare and disciplinary logic

Soil rejuvenation is an inter-temporal renewal process that requires rural-urban partnerships, which hinge on environmental justice and manifest governance commitment to utility. Intermittent precipitation is an issue that plagues networks of the rural urban hinterland. Clusters of renewable energy formatted on a distributive alliance mode, pegged on equitable and shared usage across rurban area, can positively impact environmental value. Transitivity is a key sense of good governance that provides resilience to cross-border nodes characterized by geographic heterogeneity. Coopetition is a situation in which competitors simultaneously compete and cooperate (Bengtsson et al., 2003). Welfare and disciplinary logic clarifies distributed development, as is the core tenet in rurbanization (Jones and Novak, 2012). Multi-level simulations with patch-growing algorithms endorse distributed development through landscape responses to networked growth management clusters (Meentemeyer et al., 2013).

The rural-urban alignment depends on the relative attractiveness of undeveloped lands and whether they are amenable to clustering adjacent to existing urban infrastructure; however, ethical and good governance harness urban sprawl and value triggers are congestion and pollution abatement. Distributive alliances enable proper planning that set into place societal, environmental, and economic disincentives that act as growth boundaries. Gender equity value chains mainstream gender balance, as women and the elderly are left behind in rural areas. The key outcome of this review is setting the interface with ethical potential and good governance incentives (Meentemeyer et al., 2013).

4. DISCUSSION

Good governance and ethical pursuit of rurban interfaces emanate from the align-ability of rurban interfaces through coupled differentiation and competitiveness. These factors set a minimum benevolence with respect to economic, societal, and environmental value amid heterogeneity. Compatibility with these factors is crucial for rurbanization to be sustained. The shared value encased rurban interface output table was configured based on the align-ability matrix for rurbanization (Tables 2 and 3).

Reliable calibration of the rurban interface output table is benchmarked against the energy access redevelopment option (Ozturk and Acaravci, 2010). The align-ability matrix specifies the strength criteria for neighborhood development emanating from align-ability determinants, which are periodically updated taking into account cognizance local conditions and rurban alignment needs (Table 2). The second column represents integration of global static ethical and good governance attributes and the third column represents the contribution to societal, environmental, and economic shared values with the intent of energy access (Madlener and Sunak, 2011). The proactive and positive roles of the urban-rural interface is assessed based on tabular structural validation to create societal, environmental, and economic shared values. The rurban interface align-ability is depicted as societal value through the interstitial institutional framework. Environmental co-share is represented by adaptive, habitats specific to locally maintainable innovative technology transfer and the economic aspect represents access to infrastructural support services at the Rurban interfaces (Table 3). The three shared value components may be interpreted as manifestation of the co-evolution (Ozturk and Acaravci, 2010).

Proactive role of partnerships, alliances, and cross-border segments of value chains play an important role in ascertaining the ethical and good governance aspects of smart urban structures integrated into robust rural habitats and may be witnessed at the eastern economic corridor, ASEAN initiative. The rurban interface framework applied to the Eastern Economic Community ASEAN evidenced ten targeted industries with a substantive rural component, namely, agriculture and biotechnology, food, robotics for rurban industry, logistics, biofuels and biochemicals, digital backbone, and healthcare. Spread over three phases, immediate, intermediate, and sustainable, five rurban-aligned infrastructure initiatives are planned, including high-speed rail networks, local airport upgrades, and maintenance, repair, and overhaul competencies at peri-urban locales and port development. Alliances for prediction equitable patterns that are juxtaposed with the majority of the infrastructure require a rurban interface appeal for value-added returns for investors. Climate proofing for rurban infrastructure projects serves the triple bottom-line of management and promotes an alliance to enable ease of access to finances.

Table 3: Shared value encased rurban interface output table

Proactive and positive role urban–rural interface can contribute to creation of societal, environmental and economic shared value		
Local dynamic factors: Align-ability determinants	Global static Ethical and Good Governance attributes	Contribution to Societal, Environmental, Economic shared value
Reciprocity for bio-cover	Societal ecology practice	Interstitial shared value institutional framework
Congruence for biodiversity	Water energy waste management	Access to infrastructural support services at the Rurban interfaces
Partnerships for rejuvenation	Environmental justice	Adaptive, habitat specific, locally maintainable innovative technology transfer
Gender-equity for value convergence	Equitable appropriation of competencies	Effective representation of micro-, vocational- and SME business interests
Proactive role of partnerships, alliances, cross-border segments of value chains play to ascertain the ethical and good governance aspects for smart urban weaved with robust rural habitats		
Alliances for prediction	Equitable patterns	Appeal for value-added returns for investors along with ease of access to finance
Cluster nodes for cooperativeness	Coopetition: cooperation and competition	Capacity building and knowledge networks for Rurban education
Value triggers for coevolution	Triple bottom line value indicators	Speed of start-up within an ethical, proactive, public – private – community compliant SME Global – regional – national market linkages

Cluster nodes for competitiveness represent a shared value between competitors who rise above short-term goals on profitability to cooperation. Infrastructure upgrades of airports and ports enhance rurban capacity and serve as value triggers for knowledge networks. Rurban education, healthcare, and skill creation coevolve across small and medium enterprises to develop a vision for ethical and proactive public-private-community compliance to corroborate two research intents; as a case in point, this vision is in consonance with global-regional-national market linkages, as the rurban interface ratchet-up to a global gateway interfacing Cambodia, Laos, Myanmar, and Vietnam with Thailand (Popper et al., 2016).

The East-West economic corridor is a societally- and environmentally-aligned conduit for water and energy. Interstitial shared values draw parallels from the environmental footprint in relation to land types (Eaton et al., 2007) (Table 2). Sustainable urban transformation is a structural process that, when overlaid onto rurban interfaces, achieves a multi-dimensional range of domain coverage and includes ethics and self-governance, innovation for differentiation to enhance competitiveness, folklore rural lifestyle blended with urban consumption-driven living, sustainable resource management, resilience to climate mitigation and adaptation, mobility and ease of access, and a built-up infrastructure with proportionate public space (McCormick et al., 2013).

The Eastern Economic Community is an illustration of the veracity of rurban-gateways interfacing Thailand, Cambodia, Laos, Myanmar, and Vietnam that has paralleled peri-urban illusiveness (Webster, 2002; Bowyer-Bower, 2006). Similar situations of chaparral wildland-urban interfaces necessitate the role of ethics and good governance due to uncertainty of healthcare, livelihood balance, influx of skills complicate the governance of habitats, and politics of space (Radeloff et al., 2005; Masuda and Garvin, 2008). Sustainability issues, such as soil quality, health deterioration due to agricultural waste burning, and severe precipitation pose barriers. Rurban interfaces enable the synergy of Thailand, Cambodia, Laos, Myanmar, and Vietnam to restore environmental (ecological, hydrological, and bionomical) values along with societal shared values of complementary skills and differentiated yet complementary competitiveness.

Proactive and positive urban-rural interface can contribute to the re-calibration of sustainable transportation for all. This corroborates with the core tenet of societal, environmental, and economic shared values that help sustain quality of life. Furthermore, migration to urban megapolises should be curbed, as there is livelihood beyond agriculture that includes seasonal community of caring societies (Ishii, 2015). Proactive roles can enhance preparedness for partnerships, as well as contribute to de-cluttering urban hot spots (Sebastiaan, 2014). Alliances and cross-border segments of value chains add resilience to address vulnerability of natural habitats that, in turn, deter sustainability (Manariotis and Yannopoulos, 2004). These outcomes play a role in the implementation of SDGs. Rurban shared-value interfaces can help combat climate change as the erratic pendulum likely sways between extreme drought and floodwater surges. Build

and retrofit-back better through sustainable innovation (Popper et al., 2016).

5. CONCLUSION, FUTURE RESEARCH TRAJECTORY, AND LIMITATIONS

Rurban interfaces create buy-in from financiers, the private sector, agri-processors, and waste-to-energy-entrepreneurs, as well as the grassroots community and rural inhabitants, who seek fresh air, ambience, verdant greens, healthy rice and wheat farms, quality irrigation water, off-grid carbon neutral energy, and a “feel good” attachment to rural homes. Akin to urban resilience need, factoring-in sustainable energy access (Cheshmehzangi, 2020). With less rural-to-urban-migration, families may unite and relish in togetherness, leading to seamless rurbanization. The Eastern Economic Corridor, ASEAN, bears testimony to core agrarian positions with interstitial shared values through locally adaptable new products and similar market preferences (Blackwell et al., 2009).

This review concedes the limitation of empirical evidence, as these outcomes are based on secondary data. Future research should the following: (i) Location of rurban lands for integrated residential, food baskets, and entrepreneurship, (ii) transformation of private land for community good, and (c) configuration of self-governance and ethical intent at local grassroots units (Abrams et al., 2012).

Inter-dependence can reshape urbanization and boost rural agri-based livelihoods, and water conduits can serve agriculture in rural habitats, promote urban forestry, augment low-carbon, and solar-power-clean freight, thereby quickly reaching urban markets. Culture can play a role in mediation, moderation, and performance-orientation to support quality infrastructure (Linderman, 2010). The four performance dimensions of cost, quality, delivery, and flexibility are evident in the five enabling trajectories, namely, land use policy, ecology practice, water-energy-waste management, environmental justice, and triple bottom-line management.

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