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Beyond Sustainability: Positioning Regenerative Futures in a Philippine State University

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Abstract

This paper presents the conceptual framework for positioning a government-funded higher education institution (HEI)in the Philippines as a regenerative university. It grounds the notion that academia should rethink and redefine Sustainable Development Goals (SDGs) through regenerative development and futures thinking. While Davao Oriental is home to a rich biological, social, and cultural heritage, this paper outlines how an academic institution can contribute to its protection, conservation, management, and regeneration. The end goal is to mainstream regenerative futures in the university's four-fold functions: instruction, research, extension, and production. Consequently, the paradigm shift aims to influence local communities to engage in a shared regenerative future that would equally benefit the environment and human societies.

Key words: sustainability, regenerative development, futures thinking, regenerative futures

Introduction

In 1987, the Brundtland Commission introduced sustainable development as a paradigm for economic growth amid the rapidly declining environmental resources. It is anchored to the idea that humans need to provide for their present needs without jeopardizing future generations (Du Pisani, 2006). At the nexus of social equity, economic progress, and the preservation of environmental integrity, sustainable development ideates the much-needed reforms in human systems and practices (International Science Council, 2020). The concept of sustainability became widely used and has evolved through time, prompting global powers to recognize the inseparability of human and environmental development.

The United Nations Sustainable Development Goals (UN SDGs) propounded 17 interrelated priorities, projecting the shared future that the world envisions. It has long guided academic discourses and scholarly inquiries across the globe with practical applications in land, air, and water environments. The overarching principles of building sustainable human communities are grounded at the intersections of social, economic, and environmental pillars (Halate & He, 2018; United Nations Development Programme, 2012).

However, sustainable development remains contested with several drawbacks in integrating the three pillars. Giddings et al. (2002) argued that although sustainability pillars are ideally interconnected, they are fractured and multi-layered. The economy is often at the center rather than equally crucial to social and environmental development. This separation has led to degrowth, stemming further declines in ecological health (Asara et al., 2015). There is an ongoing demand to transform the mechanistic or anthropocentric worldview into ecology-centered sustainability (Grierson, 2009; Du Plessis & Brandon, 2015; Heasly et al., 2020; Iliško, 2021).

Despite numerous efforts, it is clear that the 2030 target is far-fetched. The United Nations Publications (2021) reported that the ocean dead zones elevated from 400 to 700, climate change remains unabated with approximately 1.2°C increase in global mean temperature, and 100 million hectares of forest have been denuded in just two decades. Several studies show that the COVID-19 pandemic has positively impacted environmental health, while social and economic gains have been reduced (Filho et al., 2022; Rupani et al., 2020; Vitenu-Sackey & Barfi, 2021).

There is a need to rethink and redefine sustainability by inducing a paradigm shift and strategic foresight. The focus should go beyond economic gains and equitable distribution of wealth and power (Farley & Smith, 2020). While humans remain an integral component of the framework, natural resources should be recognized as limited and cannot be sustainably consumed without regeneration efforts. In other words, active measures should be undertaken to allow nature to heal and restore. The intention is not to outdate sustainable development but bank on previous works while advancing ecological regeneration.

Regenerative Development and Futures Thinking

Regenerative development is anchored to the fundamental and interlinked nature of living systems (East, 2020). From an ecological worldview, there is a need to transform destructive conventional actions into green and sustainable approaches. However, beyond sustainability are additional layers of restoration, reconciliation, and regeneration (Gibbons et al., 2018; Gibbons, 2020). Each layer builds up in a spiral, representing a methodological evolution from simple to complex. In this spectrum, the topmost aim is regeneration which employs a regenerative paradigm and collective individualism values. It also ideates humans as nature rather than just being part of it. Therefore, the regenerative concept argues that global attention should transcend beyond sustaining a precarious human-nature balance. Proactive measures must be undertaken to promote the recovery and renewal of natural resources (Regenesis Group, 2016).

Meanwhile, futures thinking is a planning approach that employs strategic foresight to respond to the growing social, economic, and environmental challenges (Asian Development Bank, 2020). In the parlance of environmental health, futures thinking entails an exhaustive baseline knowledge of environmental status to define possible futures or outcomes. Through this, policymakers and implementers may redirect the courses of action to mitigate or prevent underdevelopment possibilities (Johansson, 2021; Sheate et al., 2012).

Regenerative futures explores how futures thinking can promote regenerative development (Camrass, 2020). The basic premise is employing foresight strategies to ensure that regeneration is attained through interlinked social, economic, and environmental

development efforts. It is a conceptual design utilizing a futures lens in understanding human behavior and its potential impacts on future contexts (King, 2022; Camrass, 2020). Overall, regenerative futures is a theoretical and applied model to rethink and redesign strategies for human communities, including the future generations, to thrive in an interconnected and finite natural system.

Globally Important Local Resources

The province of Davao Oriental in the Philippines is home to a World Heritage Site inscribed by the United Nations Educational, Scientific and Cultural Organization (UNESCO), the Mt. Hamiguitan Range Wildlife Sanctuary (MHRWS). More than 1,380 species with 341 Philippine endemics are found in the sanctuary, including the critically endangered Philippine eagle *(Pithecophaga jefferyi*), among other ecologically-important faunal and floral species (Amoroso et al., 2018; Amoroso et al., 2019; Medina et al., 2019; Supsup et al., 2017; Cabras et al., 2021). One of the renowned attractions in the mountain range is the century-old pygmy forest growing on ultramafic soil.

Furthermore, the Pujada, Mayo, and Balete Bays have been listed as Most Beautiful Bays in the World (MBBW), attributed to their rich marine resources. There have been sightings of various charismatic species, such as the Green Turtle (*Chelonia mydas),* Hawksbill Turtle *(Eretmochelys imbricata),* and Dugong *(Dugong dugon)* (Garay et al., 2019; Alcala et al., 2008; Dagondon et al., 2006). Aside from their ecological value, the natural harbors are also socially, culturally, and economically important for the local and indigenous communities.

However, these ridge to reef resources are facing diverse anthropogenic threats, including wildlife hunting, ecosystem degradation, and environmental pollution (Abreo et al., 2020; Macusi et al., 2021). Several companies enter the province for open-pit mining, clearing forests, and extracting minerals with invasive technologies. Koscova et al. (2018) reported that mining induces landscape and ecological impacts that could last for generations.

Over the last decade, numerous efforts have been undertaken to manage, protect, and conserve these local resources. However, no significant gains have been achieved so far. As Mendoza et al. (2020) posited, the success of conservation initiatives is limited due to a complex social and political process. Efforts should be undertaken not only to sustain the remaining natural frontiers but also to regenerate damaged ecosystems while allowing socio-economic gains for local and indigenous communities.

Institutional (Re)branding: Academic Institution as a Catalyst of Regenerative Futures

The Davao Oriental State University (DOrSU) in the City of Mati, Philippines, was established through Republic Act No. 11033. It is the only state-funded university in the province with a student population of over 12,000 as of the school year 2021–2022. Over the years, DOrSU has been adamant about pursuing terrestrial and marine biodiversity conservation. The university played a vital role in the inscription of MHRWS as a UNESCO World Heritage Site and the enlistment of three biodiverse bays under MBBW. With these significant contributions, DOrSU was locally branded as a thought leader in environmental management, protection, and conservation.

DOrSU recognizes a bigger responsibility to contribute to the global regenerative goals through intensive efforts in the local context. Its four-fold function includes instruction, research, extension, and production. Mainstreaming regenerative futures involves institutional rebranding to define institutional operation in the said areas. This entails a whole-of-systems approach to inculcating a new academic culture. Various strategies must be explored to ensure optimal collaboration of all university stakeholders, especially the faculty, staff, students, and development partners.

As East (2020) posited, regenerative futures call for a deep understanding of the interconnectedness of natural systems. The university is a micro-system; thus, all parts need to function appropriately. Mainstreaming strategies must be carefully outlined, targeting several key result areas: people, policy, enabling mechanisms, and programs, projects, and activities (PPAs). The same framework has been introduced by the Philippine Commission on Women (PCW) on gender and development (GAD) mainstreaming (Villegas et al., 2022).

Key actors must be enabled and empowered to introduce regenerative futures in the academic system. This process entails multi-pronged mechanisms, including integrating regenerative futures in the curricula, formulating administrative policies and enabling mechanisms, and executing plans and programs. Foremost, regenerative futures should be reflected in the university's vision, mission, and goals. Setting regenerative futures as a research, development, and extension (RDE) agenda must also be explored to catalyze systemic reforms within and outside the institution.

Changes in the university must eventually transcend beyond academic corridors. As a thought leader, the institution must influence public and private agencies in Davao Oriental to exercise prudent measures in advancing regenerative futures. The 'pentahelix' model as a key to sustainable innovation must be employed, enabling cross-sector collaboration among academia, government, industry, community, and non-government organizations (Calzada & Cowie, 2017; Forss et al., 2021). The process is effort and investment-intensive, requiring a prolonged duration before significant results can be observed.

Setting the University Direction Towards Big Societal Transformation

The university is mandated to effect positive societal changes through relevant and responsive instruction, research, extension, and production initiatives. Aside from producing graduates to build a competitive human resource, it is directed towards generating knowledge and technology. Therefore, it is an imperative undertaking that universities should influence, impact, and define society's future, especially through a regenerative lens.

Japan's introduction of Society 5.0 provides a new paradigm for a human and technology-centered approach to resolving present and future challenges by integrating physical and cyberspaces (Kravets et al., 2022). The transition from hunter-gatherer, agrarian, industrial, and information societies into a super-smart society entails the application of the internet of things (IoT), big data, artificial intelligence (AI), robots, and the sharing economy into all industries and social spaces (Hitachi-UTokyo Laboratory, 2020). Technology should be used to resolve the long-known environmental dilemma, aiding human societies in the sustainable use of ecological resources while allowing regenerative advances.

Meanwhile, design strategies anchored to regenerative sustainability should be carefully laden with the university's physical spaces and infrastructure development. Regener-

ative design strategies involve using the natural ecosystem and biological species to perform mechanical functions. It also includes the applications of ecological designs to prevent environmental obliteration. Infrastructure projects in the university should carefully integrate regenerative elements by applying the principles of green, gray, red, and blue infrastructures (Ayeni & Omeiza, 2021; Ahmed et al., 2019; Kopp et al., 2021). Green infrastructures provide green spaces for biodiversity to thrive, gray promotes net-zero energy use, red presents socio-economic strategies and cultural integration, and blue facilitates efficient water use (Ayeni & Omeiza, 2021).

With regenerative futures as the umbrella vision, DOrSU's newly-created Data Science Center (DSC) is a strategic platform to mainstream data science into the university's four-fold functions. The Center shall serve as a repository of science and research information that may be utilized to understand the history, present, and future. One Research and Development Center may also be created to focus on the university's smart, future-ready, and regenerative vision. Its primary mandate is to define a regenerative future to advance environmental, social, and economic development. The university should be able to present a doable regenerative model to bring big societal transformation in Davao Oriental and beyond.

Conclusions

The call to action to safeguard our natural environment has become more urgent thirty-five years after the Brundtland Commission. With the ever-increasing environmental obliteration, there is a need for a global paradigm shift to look at development beyond sustainability –through a regenerative standpoint. However, successful initiatives depend on how effective the norm translation and entrepreneurship are in the local context. Academic institutions like the Davao Oriental State University (DOrSU) could be effective brokers if the designs of the regenerative futures are well-integrated into the curriculum, research, extension, and production. This paper presents a model for integrating regenerative futures into the university's four-fold functions. The top priority is to align the university's vision, mission, and goals to influence and guide all policy decisions and program implementation. Being the academic steward of globally significant natural frontiers, DOrSU should dedicate itself to sustainable and regenerative development. Eventually, it should influence its counterparts in the government and private sectors to catalyze extensive impacts against the global regenerative development goals.

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