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Toward a Vision of Sustainable University: Linkages between Commitment and Practices

Ibnul Qayim¹, Anisa Dwi Utami*^{1,2}, Heriansyah Putra¹, Alim S Slamet², Rina Mardiana¹, Fifi Gus Dwiyanti¹

¹Sustainable Campus Development Office, IPB University, Bogor, 16680 Indonesia

²Faculty of Economic and Management, IPB University, Bogor, 16680 Indonesia

*corresponding author: anisadwiutami@apps.ipb.ac.id

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Abstract. Sustainability management plays a significant role in higher education. Development of a sustainable university involves integrating environmental, social, and economic considerations into various aspects of its operations, including campus infrastructure, curriculum, research, and community engagement. This urgently requires a strong commitment as a driving force behind sustainable initiatives, guiding actions, decisions, and investments toward achieving sustainability goals. IPB University as one of the most prominent universities in Indonesia is not only committed to becoming a sustainable university but also consistent in developing strategic plans to pursue its vision. Guided by this vision, IPB University has specifically established the Sustainable Campus Development Office (SCDO) to devise comprehensive sustainability plans outlining its goals, targets, and strategies for reducing environmental impact, promoting social equity, and ensuring economic viability. While it is still on progress, this commitment has played a significant role in encouraging sustainability practices at the university. It provides a foundation for leadership, governance, resources allocation, curriculum integration, student engagement, community partnerships, monitoring, reporting, and continuous improvement toward achieving sustainability goals. In addition, the university has established several sustainability values as guidance and indicators for maintaining sustainable practices. Integrating values and commitment is thus critical to realizing sustainable practices from generation to generation.

Keyword:

sustainability, sustainable university, higher education, IPB University

1. Introduction

The higher education industry has been significantly impacted by the growing need for a more sustainable society as academics, students, and policymakers are facing an increasing number of sustainability-related challenges (1), (2). Given their sizes and populations, many of today's colleges have an immense influence on the environment, culture, and economy as they resemble "small cities" (3). Furthermore, universities also serve as "shapers of the values of society" by educating present and future decision-makers (4). Accordingly, universities play two roles in sustainable development, internally by minimizing the adverse effects of their operations on the environment, society, and economy (5) and externally by developing sustainable behaviors through research projects and curricula (6)(13). Keeping these roles in mind, a large number of national and international declarations have been made concerning sustainability and higher education institutions to further support the importance of sustainability to universities' agendas, as highlighted by the recent "UN Agenda 2030" and the UNESCO program "Education for Sustainable Development" (7).

Despite these strategic roles of sustainable universities, there is no easy way to manage sustainability in higher education (8). Realizing a sustainable university entail incorporating social, cultural, and economic factors into the curriculum, research, infrastructure, and community engagement, among other areas of the institution's operations (9), (10), (11). To achieve sustainability goals, actions, decisions, and investments must be guided by a strong commitment that serves as a driving force behind sustainable projects. Developing a sustainable campus requires coordination and collaboration across various departments and stakeholders within the institution. This may involve overcoming silos and fostering interdisciplinary collaboration to ensure all aspects of sustainability are addressed comprehensively. Meeting regulatory requirements and navigating complex permit processes can be a challenge to the implementation of sustainable initiatives. Pursuing sustainability goals while ensuring compliance with environmental regulations requires careful planning and coordination.

IPB University is a public university in West Java Province, Indonesia, hosting roughly 31,365 students and 3,377 academic members. IPB University initially specialized in agricultural and animal sciences early in its establishment in 1963. With advancements in science and research, it has broadened its scope beyond the confines of agriculture and animal sciences. Today, it houses nine faculties (Faculty of Agriculture, Faculty of Animal Science, Faculty of Fisheries and Marine Science, Faculty of Forestry and Environment, Faculty of Economics and Management, Faculty of Human Ecology, Faculty of Mathematics and Natural Sciences, Faculty of Agricultural Engineering, and Faculty of Medicine) and four schools (Business School, School of Veterinary Medicine and Biomedical Sciences, Vocational School, and School of Data Science, Mathematics, and Informatics).

As one of the largest universities in Indonesia, IPB University has been committed to sustainability and continuously created strategic plans to pursue its goals. In 2015, on its 52nd anniversary, IPB University was proclaimed to be a Green Campus, which refers to a higher education community devoted to increasing energy efficiency, promoting resources conservation, and improving environmental quality through education to realize a healthy life and a sustainable environment. To achieve these goals, IPB University engages in a Green Campus Movement that comprises four elements, namely 1. Green Transportation and Pedestrian Facilities, 2. Green Activities and Movements, 3. Green Spaces and Buildings, and 4. Green Energy and Solar Access. Each program has been iteratively run in stages. As a concrete step to realizing a Green Campus, the Rector of IPB University issued IPB University

Rector Regulation Number 2015/IT3/LK/2015 concerning the Implementation of Green Campus 2020 in IPB University. The attempt to make IPB University a Green Campus carries on to achieve the next milestone of becoming a Globalized Sustainable University (Renstra) by 2028. In view of the motto “inspiring innovation with integrity in agriculture, marine sciences, and tropical biosciences for a sustainable world” and its vision for 2024–2028 of “being an innovative and resilient college for the sustainable progress of the nation in building a Techno-socio-entrepreneurial University that is globally superior in the fields of agriculture, marine sciences, and tropical biosciences”, the goal of becoming a sustainable campus has become an important concern in the future development of the university.

This paper aims to describe the progress of sustainable university initiatives in IPB University, emphasizing the linkages between commitment and practices. Specifically, the paper provides a narrative of how institutional aspects support governance and practices in the campus’ sustainability management. By defining the long-term goal to become a Globalized Sustainable University, IPB University has systematically and continuously implemented various programs and action plans. Although some challenges are still pronounced, this paper attempts to present an instance describing that practices and commitment to developing sustainability in higher education require strong institutional arrangement and leadership. The rest of this paper explains its methodology, results and discussion concerning institutional framework, the role of the sustainability university office, and campus operations related to sustainability issues, and conclusion.

2. Methodology

This paper puts forth the case of IPB University, one of the major public universities in Indonesia. Specifically, this paper elaborates on IPB University's commitment and practices, including the institutional framework of its sustainability strategic planning, its sustainability university values, the role of the Sustainable Campus Development Office in campus operations, and programs related to sustainability by IPB University. To collect data, semi-structured interviews were conducted with key personnel at IPB University, coupled with data from secondary sources such as the university’s official websites and sustainability report.

3. Results and Discussion

3.1. Institutional Framework: IPB University’s Sustainability Strategic Planning

The present rector of IPB University considers sustainability as a strategic pillar. It has been raised as a subject of discussion among the community in various community events, either spontaneously or by design. IPB University is currently committed to promoting more well-structured initiatives in pursuit of sustainability goals. This commitment is therefore institutionalized and stated in the university’s Sustainability Strategic Plans. IPB University’s Strategic Plans are established every five years based on the university's Long-term Plans. They encompass the university’s vision, missions, and goals and devises strategies to achieve such vision, missions, and goals. IPB University’s vision for 2024–2028 is to be “an innovative and resilient university for the sake of sustainable national progress” and “a techno-socio-entrepreneurial university with global excellence in the fields of agriculture, marine sciences, and tropical biosciences”.

The Strategic Plans serve as guidance for the university’s annual work planning, covering ten sectors, namely 1) education, 2) research, 3) community services, 4) innovation and business, 5) organization, 6) human resources, 7) finance, 8) infrastructure, 9) information and communications technology, and 10) student and alumni affairs. The main

strategies are to be executed through the main yearly programs in the IPB University Milestones over the 2024–2028 period, including the following (depicted in Figure 1):

1. Resilient Ecosystem for Advanced Science and Technology, which refers to establishing a transformative organization that is resilient to the shocks from rapid and unpredictable changes for the development of advanced science and technology.
2. Innopreneurship (Innovation-Entrepreneurship) and Value Creation for Community and Industry, a program aimed at promoting the innopreneurship capacity to produce beneficial innovations for society and industry.
3. Global Engagement, by establishing cooperation in an extensive network with strong commitment to providing global impact.
4. Global Leadership in Innopreneurship, which reflects IPB University's pioneering role at the Asian and global levels in innopreneurship development.
5. Globalized Sustainable University, which refers to the creation of a sustainable, world-class university for the achievement of the Global Sustainable Development Goals.

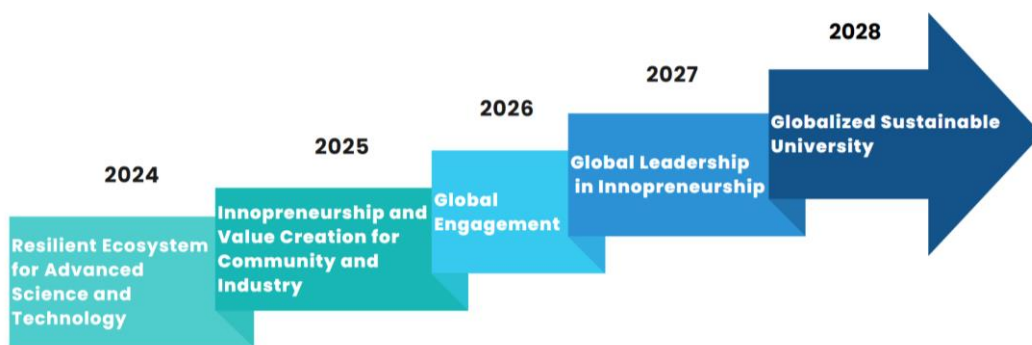


Figure 1. IPB University Milestones over 2024–2028

3.2. IPB Sustainable University Values (IPB SUVs)

Sustainability refers to the ability to maintain or improve the quality of life over the long term without depleting resources, causing environmental degradation, or compromising the ability of future generations to meet their own needs (14), (15). It encompasses a broad range of practices and principles aimed at achieving balance among economic, social, and environmental considerations (16). In the context of higher education, a sustainable campus is an educational institution that integrates principles of sustainability into its operations, planning, curriculum, research, and community engagement. The goal is to reduce the campus' environmental impact, promote social equity, and foster economic viability. A sustainable campus not only reduces its environmental footprint but also serves as a living laboratory for students and the broader community to learn about and engage in sustainable practices.

To realize the vision of becoming a Globalized Sustainable University, IPB University formulates and defines IPB Sustainable University Values as a shared platform to be understood and internalized by IPB University academia. By adopting various dimensions of sustainability, the IPB Sustainable University Values are formulated to consist of five aspects, namely 1) Manageable Infrastructure, 2) Controlled Energy and Pollution, 3) Friendly and Safe Environment, 4) Harmonious and Comfortable Environment, and 5) Continuous Education, Research, and Community Services. These values are developed as guidance and indicators for achieving sustainability both in campus operations and in the broader context of the

development of sustainability for society.

Sustainability in higher education is a matter of how to run the campus' operations in a way that does not harm the environment, thereby requiring setting up facilities and infrastructure in an environmentally friendly manner. Infrastructure management is aimed to promote resources efficiency, cost savings, resilience, educational opportunities, and reputation building. By investing in sustainable infrastructure, universities can create campus environments that support their academic missions while minimizing their environmental impact and contributing to a more sustainable future. Sustainable infrastructure refers to systems and facilities designed, built, and operated in a way that is environmentally responsible, economically viable, and socially beneficial for the entire life cycle. Specifically, the concept of sustainability integrates principles of sustainability to minimize negative environmental impact, reduce carbon footprint, and promote long-term resilience and efficiency. It covers energy efficiency, which involves the use of renewable energy resources and reductions in energy consumption. It goes hand in hand with resources efficiency, which involves minimizing the use of non-renewable resources and promoting recycling and reuse. In addition, infrastructure management aims to reduce greenhouse gas emissions and any other pollutants. It also protects biodiversity by minimizing its impact on ecosystems.

A friendly and safe environment enhances the well-being and productivity of students, faculty and staff members, and visitors. Sustainable campuses feature ample green spaces, parks, and gardens, which provide opportunities for relaxation, recreation, and social interaction. Furthermore, they strive to foster a sense of community through engagement opportunities, such as sustainability initiatives, volunteer programs, and community events. This sense of belonging in turn contributes to a supportive and friendly campus environment. Sustainable universities prioritize security measures to ensure the safety of every individual on campus. They embrace inclusive design principles to ensure that all members of the community, including those with disabilities, feel welcome and have equal access to campus facilities and services.

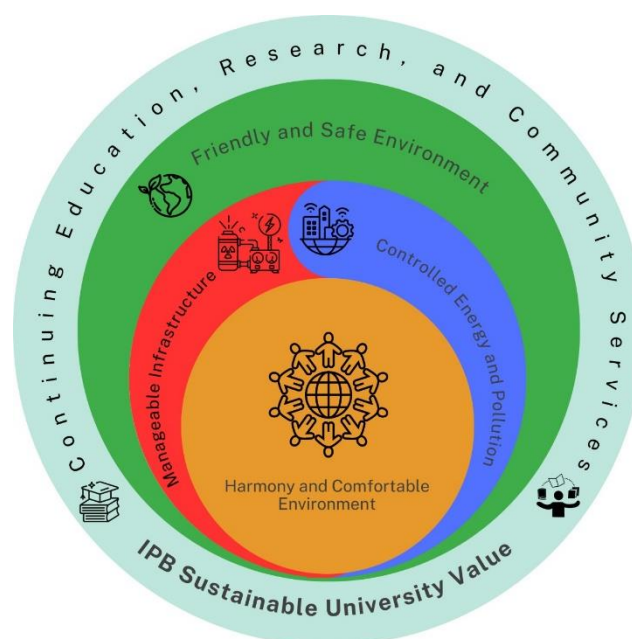


Figure 2. IPB Sustainable University Values (Source: SCDO, 2023)

Continuous education, research, and community services form the cornerstone of IPB University's mission to contribute significantly to societal development. IPB University as a higher education institution aims to provide opportunities for lifelong learning through professional development courses, certifications, workshops, and extension programs to keep professionals updated with the latest knowledge and skills in their fields. Meanwhile, research is designed as a function of knowledge advancement, fostering innovation and development, as well as academic collaboration and student involvement both at national and global levels. Subsequently, along with education and research, community services are designed to foster public engagement, service learning, community partnerships, and economic development. The integration of continuous education, research, and community services creates a dynamic environment in IPB University, where knowledge is not only generated but also applied and disseminated widely. This holistic approach ensures that IPB University remains relevant and responsive to societal needs, contributing to overall development and well-being.

3.3. Role of the Sustainable Campus Development Office (IPB Sustainability Office)

The development of campus, academic, and non-academic infrastructure needs to be planned systematically, requiring continuous coordination in aspects such as planning and development. Subsequently, transforming IPB University into a Sustainable University requires a clear roadmap for IPB Sustainable University. In addition, there is a need for programs or activities that support the realization of a sustainable campus, such as the Green Lifestyle, Waste Governance, and other transdisciplinary programs. Moreover, monitoring and evaluation in each stage of IPB university development should receive considerable attention to ensure that the planned programs can be implemented properly as planned so that they can support the achievement of IPB University's vision.

In light of the urgency of development and sustainability of the IPB University campus and of the goal to realize a Globalized Sustainable University, IPB University established the Sustainable Campus Development Office (SCDO). The SCDO was formed to carry out the tasks of planning and sustainable campus development to enhance IPB University's reputation in achieving the Sustainable Development Goals, as well as to clarify IPB University's direction in establishing a Socio-technopreneur University following the university's Long-term Plan. The SCDO has six functions and programs according to the university's Board of Trustee Regulation (28/MWA-IPB/P/2023) concerning the Organization and Work Procedures of IPB University, as presented in Table 1.

In addition to playing a role in the formulation of various strategic plans, the SCDO has also implemented several activity programs for the purpose of campus sustainability measurement and achievement. These activity programs include research on students' perceptions on campus sustainability, green lifestyle among campus community, waste generation, open space, and carbon balance, air quality assessment, and assessment of aspects of the three pillars of higher education (education, research, and community services). In addition to drawing up IPB Sustainable University documents and conducting related research, the SCDO of IPB University also strives to realize IPB University's goal of becoming a Sustainable Campus by establishing cooperation with various parties. Currently, the SCDO is conducting emissions tests of four- and two-wheeled motor vehicles in the campus and surrounding areas by calculating the carbon emissions generated by the vehicles in cooperation with Toyota Auto2000. The data generated from these tests are to be used by the SCDO to develop policy recommendations for IPB University.

Table 1. Functions and programs of the Sustainable Campus Development Office (SCDO)

Functions	Programs
1. Coordinating IPB University development plans, covering infrastructure, as well as academic and non-academic areas, under a risk-based management framework	Conceptualization and Evaluation of IPB University Masterplan Implementation
2. Coordinating the spatial planning of IPB University Town	Conceptualization of IPB University Town
3. Providing strategic directions and designs of sustainable campus program development and SDGs achievement for academic fields, research, community services, and campus operations	<ul style="list-style-type: none"> • Developing the sustainable campus concept • IPB Sustainable University Values movement • Green Lifestyle movement
4. Coordinating strategic improvement of IPB University's recognition and reputation as a Sustainable University at the national and global levels	Participation in global sustainability rankings
5. Monitoring and evaluation of the development of physical and non-physical facilities for a sustainable campus	Evaluation of infrastructure development
6. Coordinating the implementation of IPB University's Strategic Plans	Review of IPB University's Strategic Plans

Source: SCDO, 2023

3.4. Sustainability Practices within Campus Operations

IPB University has embarked on transformative sustainability initiatives within its campus operations. In addition to strengthening its reputation, participation in sustainability rankings also encourages IPB University to stay on track in a journey of sustainable self-improvement. IPB University has so far participated in four sustainability rankings, namely national-level SDG Action Awards, UI GreenMetric World University Rankings, QS World University Rankings: Sustainability, and THE Impact Rankings. IPB University's sustainability efforts have been receiving wide recognitions through prestigious rankings and awards. The university secured the top position as the 1st Best University in Indonesia's SDG Action Awards 2023, showcasing its commitment to sustainable development goals. Additionally, it is ranked 34th in the UI GreenMetric World University Rankings for sustainability performance, 4th at the national level. In QS World University Rankings: Sustainability 2024, IPB University has attained the 405th position globally and 2nd nationally. In THE Impact Rankings, IPB University found itself between the 101st and 200th places out of 1591 participating higher education institutions.

ORGANIZATIONAL STRUCTURE IPB UNIVERSITY

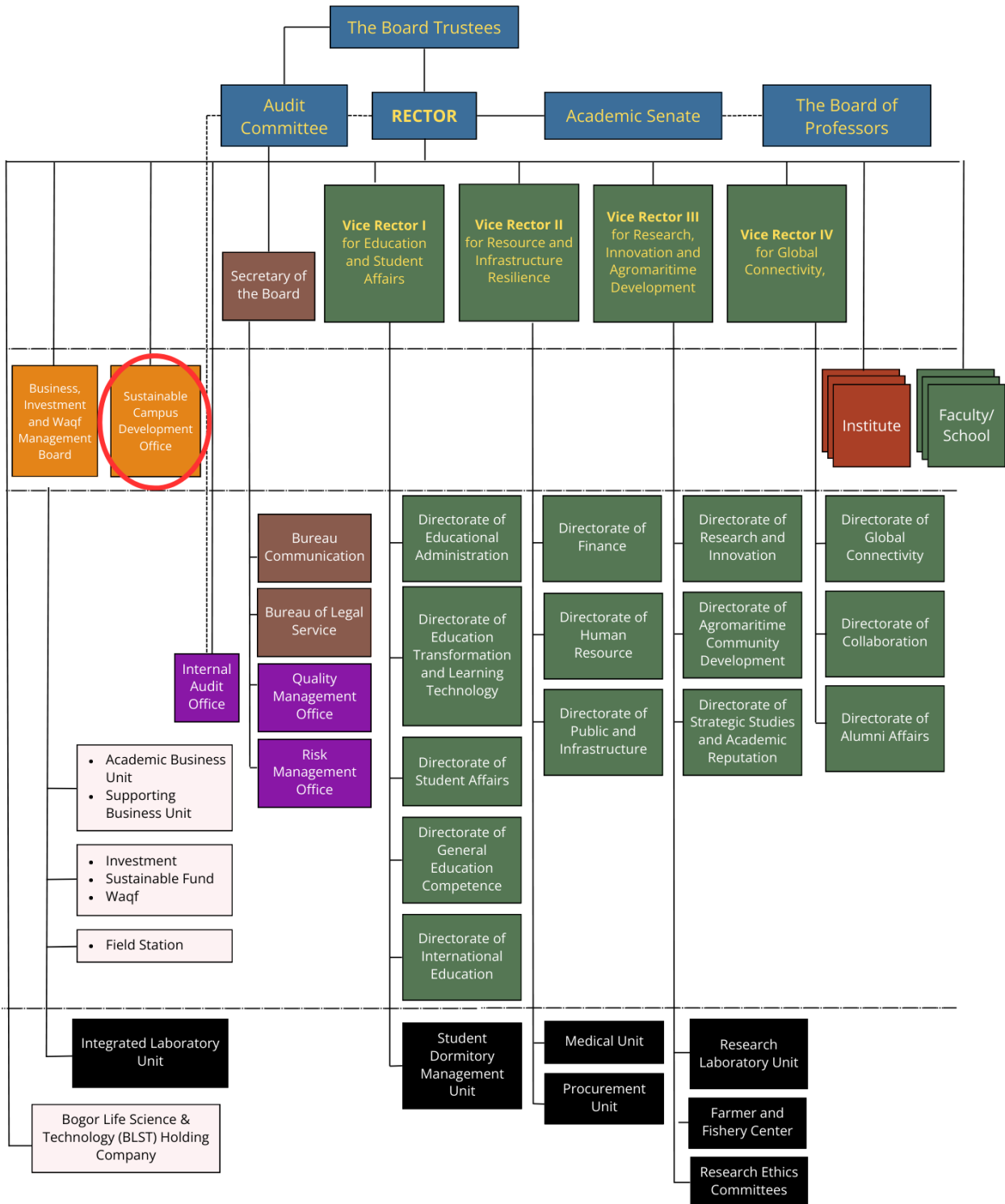


Figure 3. The SCDO's position within IPB University's organizational structure

IPB University seeks to become a Sustainable Campus and is devoted to managing its carbon footprint by optimizing energy use efficiency and using green transportation to reduce emissions. Besides, it is also committed to maintaining existing open space within its area to meet the needs for open space of all campus residents. It has additionally commenced a green building initiative. Aside from managing waste on campus, it is also endeavouring to manage water to fulfil the campus' water needs of both the present and the future.

3.5. Managing Sustainable Infrastructure

The campus of IPB University spans a land area of 1669 hectares, which is divided into 18 distinct locations, with a total of 96% open space area. The extensive designation of open space area is intended to support the concept of a “Living Lab” applied in IPB University. A Living Lab is established to offer students, staff members, and lecturers an opportunity to gain a hands-on experience to make a greater impact on society. Living Labs take the form of woodlands, farmlands, wetlands, teaching factories, and business units. IPB University is committed to prioritizing sustainable management practices within its open spaces and landscapes. For example, 86.54% of the open space area on IPB University Dramaga Campus is allocated to various purposes, including parking areas (1.7%), roads (4.53%), forest vegetation (33.26%), planted vegetation (43.71%), lakes (1.16%), and ground surfaces (2.18%).

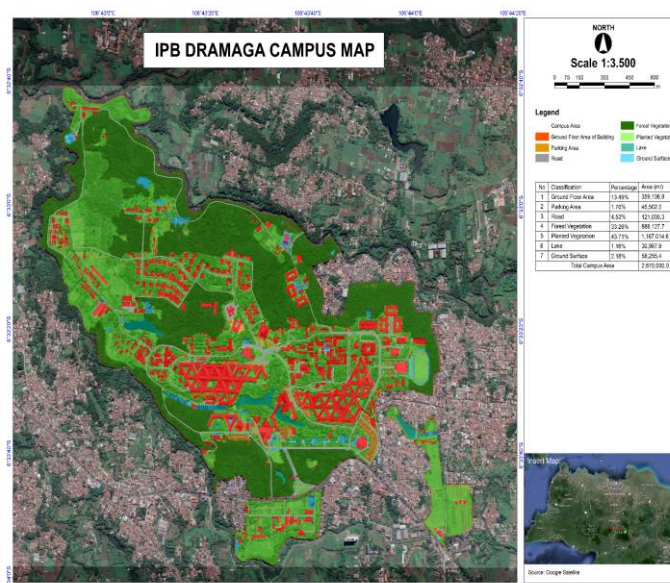


Figure 4. IPB University Dramaga Campus digital map

Additionally, IPB University has tried to adopt green infrastructure, particularly through green building initiatives. Not only do they result in cost savings, such practices also enhance efficiency, reduce carbon footprints, and foster healthier environments for individuals. Green building implementation plays a vital role in tackling climate change, fulfilling ESG (environmental, social, and governance) objectives, maintaining resilience, and promoting equity within communities. Reflecting on its vision to be a green campus, IPB University has pursued green building certifications to ensure new and existing buildings are designed and operated with sustainability in mind. In Indonesia, green building certification is conducted under the Greenship scheme by Green Building Council Indonesia (GBCI). Greenship ratings are made by evaluating the buildings of interest in some categories, such as appropriate site development, energy efficiency and water conservation, indoor health and comfort, and building environment management.

3.6. Controlling Energy and Pollution

To control energy and pollution, IPB University puts efforts to manage its operational carbon footprint, optimize energy efficiency, and reduce vehicle emissions. IPB University's carbon footprint is calculated in the aspects of transportation, electricity, and waste. In 2022, IPB University emitted 10,761 kgCO_{2e}. In the following year, the emissions increased to 14,726 kgCO_{2e}, which means that every person in IPB University emitted 0.41 kgCO_{2e} per year. In light of the increase in carbon footprint in IPB University every year, cutting IPB University's carbon footprint becomes critical. IPB University's plan to reduce its carbon footprint includes imposing vehicle limitations based on emissions tests, waste reduction and composting, and adding sustainable electricity sources. With regard to energy usage, IPB University implements up to 63% energy-efficient appliances, including AC inverters that are 60% more efficient than regular units. Photocells/timers automate lamp usage, especially on streets, minimizing unnecessary lighting during the day. Lighting uses LED lamps, reducing electricity consumption by 40%. IPB University also employs electricity usage monitoring tools for effective consumption management and reduces dependence on the National Electricity Company (PLN) as its energy source. Additionally, renewable energy sources like biodiesel, biomass, solar panels, and windmills are integrated to supply electricity. IPB University also provides rent-free bicycles, complimentary bus services, and access to electric golf cars as part of its initiatives to reduce the use of private vehicles on campus. IPB University has constructed connector pathways to facilitate pedestrian movement. While private cars are still permitted to enter the campus area, IPB University has implemented a car gate system that is accessible only to ID holders. These measures aim to reduce emissions and promote sustainable transportation options on campus.

3.7. Waste Governance

IPB University has implemented comprehensive waste management strategies aimed at minimizing waste generation and promoting recycling and composting. In terms of waste segregation and recycling, IPB University has established systems to separate recyclable materials from general waste across campus facilities. Additionally, through composting initiatives, organic waste is converted into compost for use in landscaping and agriculture. IPB University also utilizes a biodigester to efficiently manage and reduce waste. Collaborating with Mountrash, IPB University has facilitated the installation of drop boxes around the campus, allowing individuals to deposit plastic bottles for recycling. In this collaboration, participants receive benefits such as points that can be redeemed for monetary rewards. To reduce plastic bottles, IPB University also provides water stations throughout the campus area.

IPB University is dedicated to reducing waste generation and advancing circular economy principles. In view of the importance of sustainable waste management practices, the university has devised comprehensive plans to address waste generation. Annually, IPB University produces 326 kg of organic waste and 142 kg of inorganic waste. In response to this issue, the institution implements a robust waste recycling program, which has successfully treated 19% of organic waste and 20% of inorganic waste. Despite these efforts, however, a portion of the waste is still disposed to landfill sites. Therefore, IPB University continuously explores innovative solutions to further minimize waste generation and enhance recycling rates. By fostering a culture of sustainability and resources efficiency, IPB University aims to create a greener and more environmentally responsible campus community. Through ongoing initiatives and collaborations, the university strives to achieve its waste reduction

goals while contributing to the broader objectives of environmental stewardship and sustainability.

3.8. Water Management

IPB University as a sustainable university relies on water from treatment plants located near the campus and draws water from nearby rivers. With two water treatment plant (WTP) locations along the Cihideung and Ciapus Rivers, IPB University can produce 2,795,040 m³ of clean water to supply all university buildings. Eliminating the dependence on municipal waterworks (PDAM Bogor), IPB University's approach underscores its commitment to sustainable water management practices. By utilizing locally sourced water and investing in treatment infrastructure, the university ensures a reliable and sustainable water supply while minimizing its environmental footprint.

3.9. Sustainability in Teaching, Research, and Community Engagement

In light of the growing concern about sustainability, IPB University has integrated the sustainability issue into teaching, research, and community engagement. The university has regularly evaluated all activities, particularly in relation to the Sustainable Development Goals (SDGs). As one of the pillars of higher education, community engagement is carried out by IPB University as the main foundation for fulfilling social responsibility. The strategic issue in community engagement, as stated in the IPB University Long-term Plan (RJP) 2019–2045, is to integrate community engagement activities with the help of information and communications technology to support IPB University's effort to become a Techno-socio-entrepreneurial University. The quality of IPB University's community engagement is continuously improved in various ways, including by establishing regulations such as IPB University Rector Regulation No. 21/IT3/LT/2014 concerning the Quality Standards for Research and Community Services in IPB University and the IPB University Research Master Plan 2016–2025.

IPB University has conducted several sustainability programs that regularly involve many stakeholders in the university. As the leading agriculture-based university in Indonesia, IPB University places a strong emphasis on innovation in the food sector. This focus has led to significant advancements, particularly in the development of climate-adaptive rice varieties. In 2023, IPB University successfully introduced several high-quality rice strains, including IPB 3S, IPB 9G, and IPB 15S. These rice strains have been disseminated in 26 provinces in Indonesia with higher productivity (11 tonnes per hectare) and better resistance to diseases. Regarding the contribution to supporting a sustainable food system, IPB University has also launched an organic fertilizer namely GoatHai organic fertilizer. GoatHai organic fertilizer is a premier innovation from the IPB University which has successfully penetrated international markets through the One Village One CEO (OVOC) mentoring program. GoatHai is made from selected goat manure processed with modern technology. The OVOC program involving GoatHai not only benefits farmers who use this fertilizer but also positively impacts the local economy. By increasing production and improving the quality of agricultural yields, farmers can enjoy higher incomes. Additionally, the program provides training and support for farmers and local entrepreneurs, creating jobs and empowering rural communities.

Furthermore, in collaboration with the Ministry of Environment and Forestry, IPB University has launched the Forest and Land Fire Prevention Patrol Information System (SIPP Karhutla). This cutting-edge system, available as a mobile application and website, is designed to improve patrol data management for forest and land fire prevention. The implementation

of SIPP Karhutla has significantly enhanced the efficiency of field patrols and data management.

In 2023, IPB University embarked on groundbreaking research and development of genetic technology for Sumatran Rhinos and Orangutans. For this initiative, IPB University also collaborates with Texas A&M University, Colossal Biosciences, and Re: Wild USA. The primary goal is to boost the population of Sumatran Rhinos in conservation areas using gene-editing techniques. Historically, captive breeding without technological advancements has resulted in only five rhinos being born worldwide over the past 40 years. Recognizing the urgency, the Indonesian Ministry of Environment and Forestry fully supports this innovative approach. This collaboration also underscores the university's commitment to sustainable value, striving to create a friendly and safe environment through continuous education, research, and community service.

Through the Center for Coastal and Marine Resources Studies (CCMRS), IPB University is partnering with PT Pupuk Kaltim on a Center of Excellence (COE) initiative focused on coral reef sustainability. These efforts aim to advance research, education, and community involvement in coral reef conservation. This initiative includes four integrated Scopes of Work (SOW): 1) Assessing and mapping the health and biodiversity of coral reef ecosystems, 2) Developing the Sea Garden, a field laboratory and learning, center for coral ecosystems and marine education, serving various stakeholders, including domestic and international universities, 3) Establishing a coral reef education center dedicated to ex situ conservation, and 4) Strengthening and engaging the community around coral reef conservation.

In addition, to support a harmonious and comfortable environment through community service, IPB University has established the "Sekolah Keluarga Berkualitas (School for High Quality Family)". This program aims to enhance the knowledge and skills of families in fostering a high-quality family environment, with a particular focus on developing Indonesia's future generations. The program comprises seven sessions conducted in Balumbangjaya Village, Loji Village, and Benteng Village. The program's strategy involves close collaboration with local stakeholders, regular health monitoring for children, and continuous guidance and training for the parents (especially mothers) until they complete the program. Additionally, the initiative actively engages villages surrounding the campus to promote family welfare and develop a healthy, high-quality human resource base. Through these efforts, the program seeks to create sustainable improvements in family well-being and contribute to developing a robust and healthy society.

In summary, IPB University has demonstrated a full commitment to sustainability through its programs, innovative research, and active engagement with the community. The university's efforts to integrate sustainability into its curriculum, operations, and outreach initiatives are commendable and reflect a deep understanding of the urgent environmental challenges today. By fostering a culture of sustainability, encouraging interdisciplinary collaboration, and providing students with the tools and knowledge to become future leaders, IPB University is trying to make significant strides toward a more sustainable future. While continuing to build on these foundations, IPB University is still looking forward to further advancements and increased impact, ensuring that sustainability remains at the core of its mission and values.

4. Conclusion

Managing sustainability in higher education requires a strong institutional commitment, involving incorporation of social, cultural, and economic factors into the

curriculum, research, campus infrastructure, and community engagement, among other areas of the institution's operations, to achieve sustainability objectives. IPB University as one of the most prominent public universities in Indonesia has been committed to becoming a Globalized Sustainable University. Faithful to this commitment, the university developed Sustainability Strategic Plans and specifically established the Sustainable Campus Development Board to direct more well-structured initiatives toward sustainability, offering a framework for governance, leadership, curriculum integration, student participation, community partnerships, monitoring, reporting, and ongoing development. Additionally, the university also established five pillars of sustainability values, namely manageable infrastructure, controlled energy and pollution, friendly and safe environment, harmonious and comfortable environment, and continuous research, education, and community services. These sustainability values were formulated to serve both as guidance and as indicators for continuing sustainable activities. While it is still on progress, this commitment has played a significant role in encouraging sustainability practices at the university.

References

1. Marques C, Bacheaga SJ, Tavares DM. Framework proposal for the environmental impact assessment of universities in the context of green IT. *Journal of Cleaner Production*. 2019 Dec; 241:18346. <https://doi.org/10.1016/j.jclepro.2019.118346>.
2. Yuan X, Zuo J, Huisingh D. Green universities in China—what matters?. *Journal of Cleaner Production*. 2013 Dec;61:36-45. <https://doi.org/10.1016/j.jclepro.2012.12.030>.
3. Ávila LV, Leal Filho W, Brandli L, Macgregor C J, Molthan-Hill P, Özuyar PG, Moreira RM. Barriers to innovation and sustainability at universities around the world. *Journal of Cleaner Production*. 2017;164;1268-1278. <https://doi.org/10.1016/j.jclepro.2017.07.025>.
4. Godemann J, Bebbington J, Herzig C, Moon J. Higher education and sustainable development: Exploring possibilities for organisational change. *Accounting, Auditing & Accountability Journal*. 2014 Feb;27(2):218-233. <https://doi.org/10.1108/AAAJ-12-2013-1553>.
5. Leal Filho W, Will M, Salvia AL, Adomssent M, Grahl A, Spira F The role of green and Sustainability Offices in fostering sustainability efforts at higher education institutions. *Journal of Cleaner Production*. 2019 Sep;232:1394-1401. <https://doi.org/10.1016/j.jclepro.2019.05.273>.
6. Stough T, Ceulemans K, Lambrechts W, Cappuyens V. Assessing sustainability in higher education curricula: A critical reflection on validity issues. *Journal of Cleaner Production*. 2018 Jan;172:4456-4466. <https://doi.org/10.1016/j.jclepro.2017.02.017>.
7. Leal Filho W, Shiel C, Paço A, Mifsud M, Ávila LV, Brandli LL, Caeiro S. Sustainable Development Goals and sustainability teaching at universities: Falling behind or getting ahead of the pack?. *Journal of Cleaner Production*. 2019 Sep;232:285-294. <https://doi.org/10.1016/j.jclepro.2019.05.309>.
8. Leal Filho W, Wu YCJ, Brandli LL, Avila LV, Azeiteiro UM, Caeiro S, Madruga LRDRG. Identifying and overcoming obstacles to the implementation of sustainable development

- at universities. *Journal of Integrative Environmental Sciences*. 2017 Aug;14(1):93-108. <https://doi.org/10.1080/1943815X.2017.1362007>.
9. Mader C, Scott G, Razak DA. Effective change management, governance and policy for sustainability transformation in higher education. *Sustainability Accounting, Management and Policy Journal*. 2013 Nov;4(3):264-284. <https://doi.org/10.1108/SAMPJ-09-2013-0037>
 10. Baker-Shelley A, van Zeijl-Rozema A, Martens P. A conceptual synthesis of organisational transformation: How to diagnose, and navigate, pathways for sustainability at universities?. *Journal of Cleaner Production*. 2017 Mar;145:262-276. <https://doi.org/10.1016/j.jclepro.2017.01.026>
 11. Verhulst E, Lambrechts W. Fostering the incorporation of sustainable development in higher education. Lessons learned from a change management perspective. *Journal of Cleaner Production*. 2015 Nov;106:189-204. <https://doi.org/10.1016/j.jclepro.2014.09.049>
 12. Yin RK. *Case Study Research and Applications Vol. 6*. Thousand Oaks. 2018. CA:Sage.
 13. Fissi S, Romolini A, Gori E, Contri M. The path toward a sustainable green university: The case of the University of Florence. *Journal of Cleaner Production*. 2021;279:123655.
 14. Ranjbari, M, Morales-Alonso G, Esfandabadi ZS, Carrasco-Gallego R. Sustainability and the sharing economy: modelling the interconnections. *Dirección y Organización*. 2019;33-40.
 15. Geissdoerfer M, Savaget P, Bocken NM, Hultink EJ. The Circular Economy—A new sustainability paradigm?. *Journal of Cleaner Production*. 2017;143:757-768.
 16. Gimenez C, Sierra V, Rodon J. Sustainable operations: Their impact on the triple bottom line. *International Journal of Production Economics*. 2012;140(1):149-159.



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