

Sustainable Internationalization In Higher Education: Exploring Institutional Perceptions On Low-Carbon Mobility Practices At ITB

Internasionalisasi Berkelanjutan di Pendidikan Tinggi: Menjelajahi Persepsi Institusional tentang Praktik Mobilitas Rendah Karbon di ITB

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Abstract

The process of internationalization of higher education institutions is increasingly being threatened by the need to address issues of sustainability, especially those related to academic mobility. The main aim of the research is to explore how sustainability is understood, limited, and implemented within the internationalization process of Institut Teknologi Bandung (ITB) in Indonesia. To achieve the research aims, a qualitative phenomenological research design will be employed to collect data through semi-structured interviews with key individuals at ITB involved in the process of internationalization. The research will be guided by various theoretical models such as institutional theory, organizational change and learning, systems theory, and collaborative governance. The research established that the process of internationalization at ITB is still largely dependent on physical mobility, which has a huge impact on its carbon footprint. Sustainability has been poorly integrated into the process of decision-making related to mobility. External drivers such as ranking and country policies have dominated the sustainability agenda at ITB. Structural limitations such as rigid curriculum models, bureaucratic hurdles, inadequate digital technologies, and lack of carbon tracking have limited the adoption of low-carbon mobility at ITB. The proposed strategic framework aims to integrate sustainability into internationalization by focusing on diversification of mobility modalities, governance integration, curriculum change, capacity building, and carbon accountability. The current research contributes to the existing literature on internationalization by providing new knowledge from the Global South, as well as recommendations to ensure global competitiveness while being climate responsible, and to support the global effort to decarbonize academic mobility.

Keywords: Sustainable Internationalization, Low-Carbon Mobility, Higher Education Governance, Global South, Virtual Mobility, Institutional Change.

Abstrak

Proses internasionalisasi lembaga pendidikan tinggi semakin terancam oleh kebutuhan untuk mengatasi isu-isu keberlanjutan, terutama yang berkaitan dengan mobilitas akademik. Tujuan utama penelitian ini adalah untuk mengeksplorasi bagaimana keberlanjutan dipahami, dibatasi, dan diimplementasikan dalam proses internasionalisasi Institut Teknologi Bandung (ITB) di Indonesia. Untuk mencapai tujuan penelitian, desain penelitian fenomenologi kualitatif akan digunakan untuk mengumpulkan data melalui wawancara semi-terstruktur dengan individu-individu kunci di ITB yang terlibat dalam proses internasionalisasi. Penelitian ini akan dipandu oleh berbagai model teoretis seperti teori institusional, perubahan dan pembelajaran organisasi, teori sistem, dan tata kelola kolaboratif. Penelitian ini menemukan bahwa proses internasionalisasi di ITB masih sangat bergantung pada mobilitas fisik, yang berdampak besar pada jejak karbonnya. Keberlanjutan kurang terintegrasi ke dalam proses pengambilan keputusan terkait mobilitas. Faktor pendorong eksternal seperti peringkat dan kebijakan negara telah mendominasi agenda keberlanjutan di ITB. Keterbatasan struktural seperti model kurikulum yang kaku, hambatan birokrasi, teknologi digital yang tidak memadai, dan kurangnya pelacakan karbon telah membatasi adopsi mobilitas rendah karbon di ITB. Kerangka strategis yang diusulkan bertujuan untuk mengintegrasikan keberlanjutan ke dalam internasionalisasi dengan berfokus pada diversifikasi modalitas mobilitas, integrasi tata kelola, perubahan kurikulum, pembangunan kapasitas, dan akuntabilitas karbon. Penelitian ini berkontribusi pada literatur yang ada tentang internasionalisasi dengan memberikan pengetahuan baru dari Global

South, serta rekomendasi untuk memastikan daya saing global sambil bertanggung jawab terhadap iklim, dan untuk mendukung upaya global untuk dekarbonisasi mobilitas akademik.

Kata Kunci: Internasionalisasi Berkelanjutan, Mobilitas Rendah Karbon, Tata Kelola Pendidikan Tinggi, Global South, Mobilitas Virtual, Perubahan Kelembagaan.

1. Introduction

The Anthropocene is marked by unprecedented anthropogenic changes to the environment; air transport contributes to 2 to 3 percent of global CO₂ emissions and is increasing (Gössling & Peeters, 2007). Higher education institutions are significant agents of global mobility through conferences, collaborations, and student exchange; they are caught in the sustainability paradox of promoting sustainability while being embedded in carbon-intensive travel practices. Studies have identified that air travel in academia generates the highest proportion of a university's carbon footprint compared to building energy consumption (Arsenault et al., 2019; Shields, 2019).

Virtual and hybrid conferences, which are low-carbon approaches, have been found to decrease travel emissions by over 90% and increase accessibility (Jäckle, 2021; Tao et al., 2021). However, the current frameworks of internationalization are still largely structured in a way that corresponds to mobility patterns that are beneficial to the mobile elite while continuing the Global North paradigm, without sufficient attention to the Global South (Stein, 2017; Tikly, 2019). This current situation poses significant questions regarding equity, sustainability, and the future of international engagement in higher education.

The Indonesian higher education system has grown significantly due to the Merdeka Belajar-Kampus Merdeka (MBKM) policy, which promotes flexibility in curricula and global collaboration. Institut Teknologi Bandung (ITB), a premier STEM university, is one such example in this regard, as internationalization is a policy that enhances the prestige and competitiveness of the university but is also extremely air travel-dependent, thus releasing a lot of greenhouse gases. Sustainability efforts are still disjointed and lack significant integration into mobility governance, leading to a mismatch between the university's aspirations and climate responsibility (Jones et al., 2021; Campbell et al., 2023).

The research gap that this study seeks to fill is the lack of investigation into how sustainability is constructed within the internationalization strategy of ITB, as well as the development of strategies to incorporate sustainability into academic mobility. The broader research goal is to provide Global South insights into the discussion on sustainable internationalization and provide evidence-based recommendations on how to balance competitiveness with climate responsibility. More specifically, the research aims to:

- Investigate how sustainability is currently constructed within ITB's international education policies and mobility strategies.
- Uncover institutional enablers and barriers to implementing sustainable mobility.
- Explore strategies to decrease dependence on short-term and aviation-dependent mobility and enhance long-term and virtual mobility alternatives.
- Inform the international debate on decarbonizing higher education mobility from a Global South perspective.

2. Method

Study Design and Setting

This study employed a qualitative phenomenological study to investigate the conceptualization, experience, and practice of sustainability in international education and mobility at ITB, Indonesia. Phenomenology was chosen for its capacity to shed light on the experience and practice of sustainability in international education and mobility, where the voices of the participants take center stage rather than focusing on policy and quantitative findings (Saunders et al., 2023).

Participants and Sampling

The research used purposive sampling to select the participants who were directly involved in the internationalization process at ITB, Indonesia. A total of five decision-makers were selected for the research, consisting of both administrative and academic staff from the university. Three were from STEM fields of study, while two were from non-STEM fields of study to have a good mix of opinions on the practices of mobility and sustainability. Each of the selected participants had decision-making powers concerning internationalization processes in their respective fields of study.

Data Collection

Semi-structured in-depth interviews were conducted to gather data. These enabled the researcher to explore participants' experiences while still covering the essential themes of sustainability perceptions, institutional enablers, and sustainability barriers in low-carbon mobility.

Interview Framework

The development of interview questions was guided by three complementary theoretical approaches:

- Institutional theory (DiMaggio & Powell, 1983): to investigate organizational practices and the role of external forces in shaping mobility practices.
- COM-B model (Michie et al., 2011): to identify capability, opportunity, and motivation factors that shape the adoption of low-carbon alternatives.
- Multi-Level Perspective (MLP) (Geels, 2002): to explore interactions between niche innovations (e.g., virtual mobility), regime practices (e.g., short-term mobility), and landscape pressures (e.g., climate imperatives).

Data Analysis

Interview transcripts were analyzed using reflexive thematic analysis (Creswell & Poth, 2018). The coding process involved three stages:

- Open coding to capture initial ideas and perceptions.
- Focused coding to group codes into categories aligned with sustainability and mobility practices.
- Theme development to identify overarching patterns related to staff comprehension of low-carbon mobility, institutional enablers and barriers, and the integration of sustainability into internationalization.

This process ensured that findings were empirically informed, theoretically grounded, and also linked to participants' experiences.

3. Result and Discussion

The semi-structured interviews conducted with key decision-makers in charge of internationalization and academic mobility in ITB provided valuable insights into the experience and practice of sustainability in the larger mobility ecosystem in ITB. The analysis indicated both convergent perspectives across faculties and distinct disciplinary differences in framing sustainability within international academic exchange.

As is the standard procedure in qualitative research designs, the process of data analysis also involved a set of stages from initial coding to the identification of overarching themes. This ensured transparency in the process of how the raw data collected in the form of interview findings was converted to research findings, thereby establishing the credibility and trustworthiness of the research (Tracy, 2010).

Six themes emerged:

1. Metric-driven internationalization — reliance on physical mobility as a KPI-driven indicator of success.
2. Fragmented sustainability awareness — sustainability recognized but weakly integrated into mobility practices.
3. Institutional silos — sustainability and internationalization managed separately, with little coordination.
4. External policy and ranking pressures — global rankings and national funding schemes drive mobility priorities over sustainability.
5. Structural constraints — rigid curricula, bureaucracy, and lack of carbon accounting hinder adoption of low-carbon mobility.
6. Emerging enablers — growing awareness, sustainability literacy, and digital infrastructure point to potential pathways for transformation.

Table 1. Enablers and Barriers for Sustainable Mobility at ITB

Enablers	Barriers
Recognition of sustainability discourse	Fragmented integration into mobility decisions
Emerging awareness among staff/faculty	Separate governance units (silos)
Potential of virtual and hybrid formats	Rankings and policy pressures prioritize mobility
Organizational learning culture	Rigid curricula and bureaucratic approvals
Longer-term mobility as alternative	Lack of carbon accounting and infrastructure
Interest in sustainability literacy	Geographic reliance on air travel

Discussion

The findings, therefore, reveal the paradox in the internationalization policies at ITB, where the internationalization is highly pursued as an institutional prestige, while the issue of sustainability is in fragments, separate from the international mobility governance. This is a reflection of a global phenomenon where universities are more focused on institutional competitiveness and rankings than on sustainability (de Wit & Altbach, 2021). ITB's case illustrates how Global South institutions face unique

tensions between aspirations for global visibility and the realities of resource constraints, governance silos, and limited infrastructure for low-carbon alternatives.

Interpretation of Themes

- Metric-driven internationalization underscores the dominance of quantitative indicators, echoing the phenomenon where mobility is valued more for visibility than for depth of learning (Knight, 2016). The emphasis on short-term exchanges to increase participation rates indicates a performative approach to internationalization, where KPIs take precedence over sustainability.
- Fragmented sustainability awareness indicates that sustainability remains symbolic and is a reflection of a phenomenon where sustainability is a performative issue in higher education (Velazquez et al., 2005). Lack of faculty concern for environmental impacts indicates that sustainability is an individual rather than organizational priority.
- Institutional silos demonstrate a lack of effective governance, similar to the concern raised in the literature regarding the need for cross-functional coordination to support sustainability (Lozano et al., 2015). At ITB, sustainability and internationalization are managed by separate units, preventing synergies that could align mobility strategies with environmental goals.
- External pressures highlight how rankings and policy incentives shape institutional behavior, which may conflict with environmental objectives (Buckner, 2019). ITB's focus on mobility figures is linked to global rankings and national funding schemes that incentivize participation rather than sustainability.
- Structural constraints illustrate systemic barriers to internationalization, reinforcing calls for curriculum reform, streamlined administration, and carbon accountability (Filho et al., 2023). The rigidity of curricula, bureaucratic approval processes, and lack of carbon tracking systems create barriers to long-term or virtual mobility.
- Emerging enablers suggest possibilities for transformative change through sustainability literacy, digitalization, and organizational learning (Argote & Miron-Spektor, 2011). Faculty recognition of sustainability competencies and interest in virtual mobility suggest potential for change, but systemic alignment is required.

Interconnections Among Themes

Taken together, the six themes demonstrate mutually reinforcing dynamics in how internationalization and sustainability are interrelated at ITB. The central dynamic is a metric-based internationalization policy, supported by external policy and ranking pressures, which promotes large volumes of physical mobility in a manner that is not concerned with environmental impact. Within this environment, there is a lack of sustainability awareness that does not have a position to influence internationalization policy. These dynamics illustrate the absence of sustainability centrality in a system that values outputs in mobility and competitiveness. At the same time, emerging internationalization enablers such as sustainability literacy, digital pedagogy, and hybrid mobility. These are currently limited by incentive systems and governance logics. These dynamics demonstrate that organizational learning is not possible in a linear manner, indicating that sustainability must be integrated into internationalization policy.

Strategic Implications

The thematic insights point to four strategic needs:

1. Minimize carbon risk while remaining globally engaged.
2. Align governance structures with sustainability priorities.
3. Develop systems and processes for new mobility formats.
4. Build capabilities for long-term transformation.

These needs underpin a strategic framework for ITB and similar institutions:

- **Portfolio Diversification:** Reduce reliance on short-term mobility by expanding long-term, hybrid, and virtual formats. Long-term exchanges spread emissions over longer learning periods, while hybrid and virtual formats reduce travel altogether, enhancing equity and accessibility (Shields, 2019; Gössling & Humpe, 2020).
- **Integrated Governance:** Break down silos by creating cross-functional structures (e.g., a Sustainable Mobility Council) that align internationalization and sustainability units. Collaborative governance enhances clarity, accountability, and responsiveness (Ansell & Gash, 2008; Emerson et al., 2012).
- **Systemic Innovation:** Reform curricula, digitize approval processes, and embed carbon accounting dashboards. These systemic changes address entrenched barriers and enable evidence-based decision-making (Lewin, 1947; Geels, 2002).
- **Capability and Infrastructure Development:** Invest in sustainability literacy, virtual pedagogy, and digital infrastructure. Building organizational learning capacity strengthens resilience and supports long-term transformation (Alegre & Chiva, 2008; Koh & Daniel, 2022).

Strengths and Limitations

The strengths of the study include the use of the phenomenological approach, which focuses on the experiences of the institution. However, the fact that the study focused on only one institution is likely to limit the generalizability of the study. The study is also likely to have the limitation of relying on the perceptions of the data.

Implications and Future Research

The study provides evidence-based information, which can be used in the integration of the issue of sustainability in the internationalization policies of the countries in the Global South. The study provides information that can be used by policymakers in developing frameworks that ensure the countries in the Global South remain competitive without compromising the issue of climate change. Future research should focus on multiple institutions in order to ensure the generalizability of the study. In addition, the study should be done using quantitative carbon audits, not just phenomenological research.

4. Conclusion

This research investigated the framing and application of sustainability in ITB's international education policies and mobility schemes, particularly in long-term, short-term, and virtual mobility. Results showed that short-term mobility is still the most prominent option, which is highly visible but has a high carbon cost. Long-term mobility has a lower carbon cost per semester but is limited by inflexible study programs and a lack of partnerships. Virtual mobility is a promising low-carbon alternative but currently lacks adequate institutional support.

Institutional enablers include the existence of international partnerships, credit systems, and a growing interest in Collaborative Online International Learning (COIL). Nevertheless, factors such as institutional delays, lack of coordination, and the absence of carbon-tracking systems are major hindrances. External forces from rankings and government policies also continue to promote physical mobility.

The paper's contribution to the literature on internationalization is that it offers a Global South perspective on sustainable mobility. The paper argues that there is a need for systemic innovation, governance, and capacity building to embed sustainability into internationalization strategies. The experience of ITB shows that in order to decarbonize the mobility of higher education, there is a need for transformation not only in technology but also in organizations and cultures.

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