Chapter 8
Incorporating Circular Sustainability Principles in DKI Jakarta: Lessons Learned from Dutch Business Schools Management

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Abstract This study aims to set future direction of sustainability pathway(s) to incorporate circular economy within Indonesian high education systems and to "reinvent" the university role whilst shaping future leaders. For this purpose, this study intended to develop the definition of circular sustainability high education. Some of the Indonesian universities have already adopted the sustainability principles, putting the circularity concept at the heart of their education system. Nevertheless, by comparing them with some of the international experiences, in specific those of the Dutch universities, it was expected to identify relevant opportunities for the Indonesian universities to enhance their contribution on the circular sustainability fields. In consequence, the approach of this study was to analyse the managerial practices in order to integrate circular economy at Dutch universities (e.g. Business Schools), which represented the analytical framework for the Indonesian case. In terms of the research question driving this work, it corresponded to: "What are those transferable Dutch practises of circular economy towards sustainability transition to Indonesian Business Schools in DKI Jakarta?" From the methodological viewpoint, this study presented an exploratory and comparative design. As result of this research, it was observed that, among the cases analysed, there is a large difference in the management approach, particularly on how the university leaders demonstrate their contribution to sustainability. This latter requires, consequently, a strategic and systemic approach to measure the circular sustainability through performance indicators to assess progress which are spread out across four criteria. Some of the conclusions showed that there is currently no fixed panacea on how to integrate the concept of circular sustainability high education into the universities culture. Even further, the result of this

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study could proffer a guide towards a shift in circular sustainability and be used for detailed further application to depict the stand for Indonesian Business Schools.

Keywords Circular economy · Transition · Sustainable university · Indonesian management programme

8.1 Introduction

It is growingly recognised that we must fundamentally rethink our current liner economic model due to the increased pressure on the resources. The idea of shifting to a more circular model to relieve the escalating pressures on our resources – energy, materials and water – is influencing business leaders, global companies and institutions. Business leaders acknowledge that in order to secure future generations, a reconciliation of industrial model and joint plan actions is required and more and more business leaders have lent their endorsement to the principle of circular economy, particularly on their role and of what they count as success (Gitsham et al. 2013). As such, many large corporations have piloted their business models based on the extended life cycle thinking. Unilever, Coca-Cola company, BP, Shell, Heineken, IMC Pan Asia Alliance group and Accenture are some of the companies that integrate circular economy principles in their management and business (Gitsham et al. 2013). One possibility of scaling this trend up is through introducing a circular economy by designing the drivers, for example, by embarking on the role education can play in shaping future business leaders. This can be done by exploring how an educational institution can deliver effective education that will have a significant influence on future leaders in the move towards making the transition to a circular economy. A question is also raised on the institution platform to connect business leaders with circularity.

Universities have distinctive organisational cultures that value and promote learning and thus can play a vital role in processes of societal transition (Stephens and Graham 2010; Bradbury 2016). The Third Global Forum reveals the works in a formal education platform around the world to build its content to support circular economy and system thinking that are required for the transformation (Gitsham et al. 2013). Business schools and corporations/industry alike are advocated as crucial to the development of this new economic model and facilitate education for sustainability, as well as the role of governments related to capacity building and institutional development. Therefore, it is suggested that the design of management programmes through the education framework, particularly in MBA's curricula, could support the shift to a circular economy by allowing students to have first-hand experience, see and learn the inherent value in the products and materials they use from several perspectives. According to Benn and Dunphy (2009), for example, based on the experience of the Dominican University of California, developing green MBA could be considered as a revolutionary approach in bridging the business schools into a more interdisciplinary and sustainable education system. Steiner and Posch (2006) further mention that the case studies which are provided in academics not only proffer the solutions but also help the students outline and define the problems in a complex system. Furthermore, a research conducted by Sky

Future Leader (2011) revealed that 72% of employees credit their business schools in encouraging them to take a long-term view on sustainability and 70% of participants agree that sustainability can create new opportunities for businesses. They can identify how the company works and their impact on the environment in the current and foreseeable future. As it is important that future business leaders are economically literate and able to understand different approaches to the emerging economy realities, universities could be considered as primary sites to enable networking and also a well-paced and flexible education experience (a combination of practical experience and learning). Green economy and the integration of sustainable development into education curricula will thus play a vital role in businesses and policy reforms (Green alliance 2012).

In Indonesia, MBA programmes – equivalent to Master of Management – have an important role in creating future professionals, particularly in regard to the corporate ladder. A significant increase of Master of Management graduates can be seen from 8191 graduates in 2005 to 10,384 in 2007. By 2009, there were 59,021 graduates, of which 15,583 graduated from an A accredited business schools, about 10% of the total university graduates already working in 2014. It should be noted that other than the core content, most Indonesian universities offering Master of Management, particularly in Jakarta, provide for the specialisation to meet the needs for managerial positions. Considering Jakarta's role as a political and economic centre – more than 70% of Indonesian economy is concentrated in Jakarta – it serves as a suitable location for business schools and potential future businessmen. Indeed, out of the 30 universities located in Jakarta, 6 are leading business schools, which are ranked among the best in Indonesia, offering various qualification and study programmes.

Whilst business schools can play a pivotal role in the transformation by promoting the adoption of circular economy initiatives, they face barriers in terms of implementing them in their own operations. There is also a challenge in relation to getting around the pressure of how to ensure university framing of sustainability. To some degree, they explore and engage with sustainability by developing some priorities, based on their own conceptualisation. Typically, focus is placed on ISO certification, green design and other initiatives to address their target to be a sustainable university. Since the terms and language around sustainability and circular economy, however, are complex and endlessly changing, it could lead to different context and adoption, indicating different directions and interests. Therefore, the way the different universities undertake sustainability strategies varies from one another.

Whilst circular economy is rapidly getting popularity around the world, and some countries such as the UK, Australia, China, and the Netherlands have been on the frontline, leading in circular economy best practice, many Indonesian universities lag behind. This leads them to fail presenting real opportunities to design circular sustainability thinking at the heart of the education system. Moreover, the call to implement circular economy models requires breakdown the traditional walls of internal university functions as well as the external sectors such as corporations, suppliers and even other universities. A fact base for Indonesia contemplating the transition to a more circular approach is the lack of recognition by most Indonesian

corporations regarding the company's responsibility in social and environmental perspectives as prescribed, for example, by the law of PP No 47/2012 regarding the corporate social responsibility and also UU No 40/2007 regarding the responsibility of limited company. As such, business schools are often accused of moving slowly towards the circular transition.

Within this context, there is a need to understand the best practices with circular university models. The Netherlands is one of those pioneering circularity concepts. Combined with its close relation with Indonesia for hundreds of years, it could be seen as an important source to provide multiple value and opportunities that are likely to benefit Indonesia in future gazing of management programme in circular sustainability. The Netherlands' approaches to turn the concept into reality and tackle the challenges of circular entrenchment in its higher education system could proffer Indonesian universities to focus on moving into circular transition and also tap the opportunity in creating future business leaders from the classrooms.

This paper aims to set future direction of sustainability pathway(s) to incorporate circular economy within Indonesian high education systems and to "reinvent" the university role whilst shaping future leaders. For this purpose, this study intended to develop the definition of circular sustainability high education and introduce a general framework along with its indicators and strategies that can be used to reach such identification. In this regard, this study combines a qualitative and quantitative method by processing the questionnaires using PROMETHEE analysis. The studied cases are two business schools in the Netherlands, Rotterdam School of Management (RSM) and Nyenrode, as well as three leading Indonesian business school/universities, BINUS Business School, University of Indonesia, and Prasetiya Mulya Business School. The main findings, the results of the comparison between Dutch and Indonesian practices as well as the main challenges are presented, and conclusions are drawn. The methods used to collect data are document analysis and in-depth interviews with ca. 40 various stakeholders from the studied universities.

8.2 The Concept of Sustainable University

In a sustainable university, the commitment among all stakeholders strongly influences the institutions. According to Lindsay (2003), a sustainable campus community should actively engage the knowledge of the university community in order to address the ecological and social challenges that we face now and in the future. However, this concept should be translated into a more quantitative index which is measurable and attainable. Velazquez et al. (2006) defined a sustainable university as a higher educational institution, a whole or a part, that addresses, involves and promotes, on a regional or a global level, the minimisation of negative environmental, economic, societal and health effects generated in the use of their resources in

order to fulfil its functions of teaching, research, outreach and partnership and stewardship. This way they can help society make the transition to a more sustainable lifestyle. With this drawback, setting an agenda for a sustainability model is not the end of the process. This framework model should be merged within faculties, students and also staffs into a systematic transformation (Hooi et al. 2011).

However, without the assessment indicators on how to monitor the results, the process towards sustainability could be at stake. Geng et al. (2012) also mentioned the necessity to establish the social indicator along with the environmental and economic indicators. The indicators should be explicit and understood by all university levels, and institutionalisation of this idea into the system's culture and its daily operation should be done (Lozano 2006). Alshuwaikhat and Abubakar (2008) advocated that campus operation, research, teaching and efforts to conserve natural resources are the foundations for monitoring and meeting the function. It remains to be seen whether the implications of abstracting the idea of sustainable university by university managers apply towards environmental aspects over economic and social benefits (Wright 2010). To date, based on recent studies, the circular economy could qualify as the next major circular sustainable university model, to be regarded as a "green university".

Adopting circular economy principles does not entail only environmental and social benefits but can also generate economic benefits. The concept in many ways emphasises the transformation to create more value from resources, lowering environmental costs, increasing consumer convenience and securing supplies (Preston 2012). Several relevant experiences have already been recorded: Roy et al. (2008), for example, revealed that the environmental impacts of distance learning in higher education (HE) courses involve 87% less energy and 85% lower CO2 emissions compared to the full-time campus-based courses. Similarly, Karavezyris (n.d) captured that waste management is linked to the more general system goals of resource efficiency and climate protection in a manifold way. Mason et al. (2003) also yielded the waste operation, recycling and educational campaign as an indicative for a zero waste model campus. Pursuing this opportunity, Davis et al. (2009) also rested the concepts on behaviour attitudes, recycling and waste minimisation along with the energy and water efficiency. As part of that effort, Nejati and Nejati (2013) further embedded sustainability practices into teaching, research, community outreach, waste and energy management and land use and planning and scrutinise the definition of a sustainable university as a university that not only to seek academic excellence but also try to embed human values into the fabric of people's lives. Finally, from the case of the National Autonomous University of Mexico, it is expected that when well integrated, new implemented technologies and facilities could address 7.5% less energy consumption and 11.3% fewer GHG emissions by 2020 (Escobedo et al. 2014).

8.3 Green University

8.3.1 A New Definition

Building upon the referred journals and other literature reviews depicting the circular economy practices and sustainability in higher education, this study pinpoints the salient points to help identify the ongoing transformation process to circular principles. As above-mentioned, there is no unified platform of university strategy regarding how to embed the entire value of circularity and sustainability in all of the processes, as these terms are likely to be interpreted in a wide range of adoption and models. To help identifying the intrinsic value and weighty points, this study takes into account the essential characteristics that should be considered as part of a circular sustainability model. It opines that those cannot be served as a trend, but rather as setting the right ideas which help to construct the framework of green university.

The shift to a green university requires to build a more suitable integrated definition that either replaces the existing sustainable university terms or seizes new opportunities to explain what a circular sustainable university is. This study extracts from the essential characteristics and then zooms in to a new definition of green university. A green university is defined in this paper as "a university with integrated management approach aimed at managing continuous changes into sustainability and resource efficiency and be able to deploy academic excellence". This is believed to be restorative of the university system, as well as impactful for society. It is opined that this definition could remedy the limitation of the current term of sustainable university and a just "regular" green university. A regular green university refers to those which seems to focus on sustainability solely (e.g. with focus on ISO certification, green design), not yet fully involved with circular economy adoption. It is the standpoint of this study that in order to have a successful green university operation, an integration of the entire aspects of management approaches, continuous changes, sustainability and resource efficiency, as well as drawing a chance to entrench academic excellence within, is called for.

As such, the function of education managers and their commitment as a management approach are considered essential to the integration and outlining of the vision of this principle at the entire level of university operations. It is about the leadership and how to shift the paradigm towards circular sustainability attitude and place it as the heart of institutions within their instruments, i.e. vision, mission and strategic planning. Furthermore, setting up the transition should not be seen as a long-term or short-term goal, but as a desire ongoing process which will be always pursued in their prolonged period of operation. It is opined that this philosophy of never-ending process should be often made through incremental steps. It can help a university to measure and to communicate its achievements periodically. Resource efficiency is also a matter of green university to make this life cycle thinking as an eminence in their operation. It delineates the connection between the inside system of a university and the emerging world. The idea is having a continuous cycle through the

university process and using the unwanted products/process for new activities, also in addition to making people aware of their consumption patterns, thus minimising their ecological footprint to expedite the transition to a more circular world. Ultimately, this paper argues that academic achievements can play the role of catalyst to have simultaneous change. Linking circularity to academic achievements and exposing business students (as future business leaders) to these concepts in practice might affect these future business leaders better prepare them to future challenges. Therefore, green university is seen as manifesting and designing the circularity and sustainability as cornerstones in the education from teaching to research and operations. As a result, a green university will generate students with truly relevant skills to face today's challenges and have the mandate to perform an academic excellence.

8.3.2 Green University Criteria

To recognise the important aspects for developing a framework for green university, this study builds up on the existing research conducted by Velazquez et al. (2006) and comes up with the potential priority factors to benefit its operationalisation.

Management, education and learning, research and valorisation are among the criteria which are opined to have unique value in a manner to sustain circular practices in university systems and be able to educate future business leaders to act in the long-term interest of society and business. These criteria refer to a condition by which the achievement of green university can be assessed over time. This concept also introduces a set of measurements consisting of indicators and strategies, as presented in Table 8.1, to bridge a university capturing the images and infusing them into the entire university operation. The term "indicator" refers to the indication to meet the criteria; "strategy" means a way to attain the measure.

As shown in Table 8.1, this scheme also offers a common heading and guiding principles to translating the green university criteria into a set of measurements to quantifying and assessing the progress. In addition, this concept would allow changing the existing environment into new practices within green university umbrella by encouraging people within the university system, i.e., the education managers, management staffs, researchers, lectures, students and also other stakeholders, to work together and create innovative approaches in establishing circular sustainability.

8.4 The Dutch Practices

Although only two Dutch universities were approached, the analysis gives some insight into what might be the base of the Netherlands current practice and how circular sustainability could be perceived in the level of existing systems and the

Table 8.1 Criteria of green university

Criteria	Indicators	Strategies
Management	Indicating commitment to strategising sustainability	Creating a sustainability culture
		Administering specific function to managing and monitoring the sustainability integration in the university system
	Featuring campus development	Committing to green campus activity and resource efficiency (result-oriented PSS model)
		Striving to have a sustainable process in the value chain of campus operation such as treating the waste according to circularity, energy efficiency, calculating CO2 emission, green building and also organising sustainability events, etc.
		Maintaining green procurement process
	Framing sustainability competences	Having environmental management standards such as environmental management standards/ ISO, utilising framework for business schools such as UN PRME, TBL (Three Bottom Line) and other awarding schemes and recognition
Education and learning	Integrating into the curriculum in formal and informal education programmes	Incorporating the circularity concept into the curriculum and completed with complex modules supporting interdisciplinary and cross-boundary thinking
		Integrating students' soft skills and general management know-how into the course modules
		Develop piloting project and supporting joint programmes
		Encouraging pro-environmental attitudes and behaviour, including the awareness campaign
		Encouraging to develop sustainability specialisation for graduates within circular sustainability concept
	Developing sustainability agent/ambassador	Providing sufficient space encompassing social and personal competencies
Research	Strategising sustainability research	Develop a sustainability research strategies
		Give an account to foster transdisciplinary research and cross-boundary thinking
Valorisation	Managing communicating sustainability	Develop communication strategy for circular sustainability
		Building strong corporate connections
	Community outreach	Social engagement focuses on community involvement

Table 8.2 Important aspects in Dutch education practices

Similar practices	The differences	
	RSM	Nyenrode
Indicates different goals to reflecting circular sustainability but having common to put forward innovation and critical thinking at the heart of this process	Emphasising to adopt green procurement	Having a leverage in sustainable marketing
Having a clear vision and mission and embodying in sustainability statements	Assigning sustainability officer and introducing sustainability ambassador	
Transforming within institutional structures and allow the academic functions to translate the ideas in their own fields	Developing cradle to cradle for innovation and quality	
Collaborating and grounding sustainability and circularity in the wide area of a university system, including within all campus operation		
Develop ongoing awareness campaign and encouraging a wide range of participation		
Critically revise the academic curricula to compile with up-to date situation		
Focusing researches into transdisciplinary approach and cross-boundary thinking		
Making valorisation as a focal point in circular sustainability to make research come to live		

tendency of their internal instruments. To better understand the key inputs, Table 8.2 presents the highlights of the actions to enhance circularity, of both RSM and Nyenrode in their various resource areas. The information then was framed and assessed in a way that captured their comparative practices based on the scoping criteria which was figured in Table 8.1.

It can be inferred from Table 8.2 that the role of university managers is essential for education institutions to build a direction and translate it into actions towards the transition. It is found that both RSM and Nyenrode have already developed and integrated approaches to enact circular economy, advocating it as a central concept, at the heart of the education system. It seems rather difficult, however, to compare benchmarks of each other in the decision-making process. It is growingly recognised that procurement and valorisation are increasingly powered by the circular moves in their system. Thus, it can be underlined that the idea of designing circularity and sustainability is seen more as a philosophy and way of thinking rather than being part of environmental movement solely and is embedded in the entire process within the university activities. The Dutch practice is compared with the Indonesian one in Table 8.3. The idea is to provide insight in which aspects the Dutch experiences can help Indonesian universities to ground the green university concepts within an education institution.

Table 8.3 A comparison between Indonesian and Dutch practices

Viewpoints	Similarities	Differences		
		Prasetiya Mulya Business School	Binus University	University of Indonesia
Vision, mission and sustainability strategies	Differences in translating sustainability into individual management disciplines due to variety of terms in use. Thus, it is found they indicate different goals for sustainability. In addition, it is inferred that the understanding is closer to linear (3P; People, Planet, Profit) rather than circular			
	Does not stated clearly in vision and mission, but it is brought around all university activities. Some of them indicate sustainability in programme objective. However, the implementation varies at different levels			
	The university and business schools indicate good efforts to strive circular sustainability; however, it differs in how to see and reflect the concept into its system	Setting up quality assurance division	Setting building management division and develop central research centre	UI Green Metric Ranking of World Universities
Management, including campus operation	The business schools identified are aware of challenges and barriers to the integration of sustainability			
	The commitment to sustainability, shown into infrastructure, not yet emphasise on CO_2 emission reduction, waste and water treatment. However, indicating the implementation of resource-saving programme through awareness campaign, such as for water and electricity. Not yet treating the waste	New building (for the staffs and classes) in Edu town	Green building (for the staffs and classes) in Alam Sutera, along with the water purifying system	Library (crystal of knowledge) at Depok with a sustainable concept

(continued)

Table 8.3 (continued)

Viewpoints	Similarities	Differences		
		Prasetiya Mulya Business School	Binus University	University of Indonesia
	Does not have specific function to maintain and coordinate sustainability process within institutions, though some of them developed quality assurance division			
	Indication effort to get sustainability competencies beside the accreditation of DIKTI and BAN PT		ISO 9001	
	Stimulus to foster change such as offering grants to qualified staff/students are not yet very common			
	Procurement system is still based on the price, not yet adopting sustainable procurement			
Education and learning	Embedding circularity and sustainability in curricula, though the degree of implementation varies			
	Business schools tend to revise the syllabus of individual modules, few of them trying to embed sustainability across the entire curriculum			
	Have not developed sustainability representative among students and staff to encourage and step up the understanding among students and staffs			
	Sustainability which integrated in the educational programme indicates different gap between postgraduate and undergraduate levels. It is inferred that business schools have the tendency to put more effort in integrating sustainability into postgraduate level.			

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Table 8.3 (continued)

Viewpoints	Similarities	Differences		
		Prasetiya Mulya Business School	Binus University	University of Indonesia
	The most popular methods to deliver sustainability are guest speakers, field-based learning experience, case studies and local and global competitions. The content of sustainability-related teaching is centred on topics such as ethics, CSR/ community development and sustainability			
Research	Sustainability is seen as the main research focus but not yet elaborated into a more specific sustainability approach			
	Having established research centres and research groups. The themes mostly about the theoretical themes and problem-solving-driven (the requirement of industries and other interest parties). The transdisciplinary research is found, but it has not strongly developed for the entire course programmes			
Valorisation	The concept of valorisation has not yet been familiar. However, in the implementation, some part of this concept has been captured in students' projects/ joint research programmes, and also the communicating sustainability to stakeholders, including industry			

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Table 8.3 (continued)

Viewpoints	Similarities	Differences	
		Rotterdam School of Management	Nyenrode
Vision, mission and sustainability strategies	Business schools and university indicates different goals for circular sustainability, nevertheless, they stress on the innovation and critical thinking.		
	Stating clearly in vision, mission and sustainability statements		
	The university and business schools indicate good efforts to strive circular sustainability; however, it differs in reflecting the concept in its system	Embedding in the university system, and also setting sustainability goals	Embedding in the university system
Management, including campus operation	Engaging with faculty and providing an account of where it stands on circular sustainability without seeming to interfere with academic freedom		
	Business schools are committed to the idea of circularity and sustainability. Adopting in wide areas, such as energy efficiency, waste and water treatment. The commitment has been spread through awareness campaign		
	Sustainability as a process, considered to be more effective when appointing certain person to administer this process	Sustainability manager	
	Business schools appear to realise the full spectrum of opportunities arising from participation, particularly of staff and students		
	Procurement becoming an important factor in campus sustainability		

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Table 8.3 (continued)

Viewpoints	Similarities	Differences	
		Rotterdam School of Management	Nyenrode
Education and learning	Striving to embed circular sustainability across the entire curriculum		
	Business schools tend to develop new programme or courses to address sustainability or critically revise the syllabus of individual modules		Lecture initiative to incorporating circularity and green marketing
	Attempting the ambassadors and sustainability events among students and staffs to keep them up in engaging sustainability	Sustainability ambassador	
		Sustainability officer	
Research	Transdisciplinary research becomes research focus and elaborates them into sustainability approach		
	Having established research centres and research groups to carry out research dedicated to sustainability and to enhance the overall integration of sustainability in their organisation	Developing centre of research which is giving more concern on cradle-to-cradle aspect	
Valorisation	Valorisation is inferred to be a focal point of circular sustainability. The idea is to make research come to live		

8.5 The Indonesian Practices

The Indonesian interviews reveal a similar result to the one in The Netherlands. It shows that the way Indonesian universities perceive the idea of green university and how they implement it depend on their own systems. It strengthens the idea that basically there is no definite means/prescription to regain and reassert sustainability and circularity in the university system in general. The findings further show that the Indonesian participants are focused more on the narrow perception of the concept of green university. Most of the participants related the green concept with leadership (94%), infrastructure (91%), curricula (89%), energy efficiency (80%), student competencies and attitudes (86%) and also strategy (86%). However, fewer participants (37%) indicated that green concept should relate to procurement process and

closed loop system (43%). This result is not surprising since the idea of circular economy has not gained wide recognition in Indonesian universities. Nevertheless, this result has also indicated a readiness to undertake the green university as part of the system to some degree. However, such a commitment to reflect their consciousness seemed to be doubly indeterminate, particularly in the sense that they have to be firmly embodied by the principle. The main findings of the Indonesian practices are presented in Table 8.3. It provides an insight into how the concept of green university is conceived and put to practices in the five cases analysed and compared in this paper based on the selected criteria.

As presented in Table 8.3, in comparison to the Dutch practices, Indonesian universities have already nurtured and seemed to be in tune with this concept, but not focused on pursuing circularity. It is lagging behind the Netherlands, particularly in the aspects of valorisation and the scope of research. For example, despite the review showing that universities/business schools seem to give some recognition to sustainability in their research, it is revealed that there is not much information gathered related to sustainability research strategy. In addition, those researches can be partly characterised as integrative approach and mainly problem-driven. In regard to valorisation, it is revealed that Indonesian universities are not yet at the stage where they are fully able to convey the provision of its operation into the companies'/stakeholders' needs.

Additionally, it appears that there is no consensus on the exact way of implementing circular sustainability. It is up to the university managers to define the direction and shape the implementation process, which is assumed to be the main reason which causes the difference approach in the way of energising this concept within their institutions. The vision of Dutch institutions reveals that linear sustainability – which was being used to define a sustainable university– is no longer tenable. Rather, circular economy (or often called as cradle to cradle) and its proponents are seen to be a different way of thinking, not an environment movement solely. Circularity and sustainability have been used as a measure to envision and articulate the future, which are embraced in a wide area of a university system, ranging from curricula, research, procurement and campus operation to valorisation. This aspect seems to be missing in the case of the Indonesian university; thus, it can be used as a starting point for university leaders to play an important role in coordinating and changing institutions from top-down to bottom-up or even double envelopment to implement circular sustainability at all universities and faculties/school levels.

8.6 The Challenges

The green university has a chance of succeeding if the entire level of university managers and other stakeholders all work together. However, many barriers and challenges are yet to be tackled. With regard to the barriers in Indonesia, three main classifications are identified, (1) lack of direction, (2) lack of motivation and (3) lack of abilities of people within the institutions, all of which could hinder the green

Table 8.4 Barriers and suggested solutions, Indonesian perspective

Barriers	Proposed solutions	
Lack of direction	The uncertainties surrounding the translation of sustainability definition and its goals	Setting goals in circular sustainability for the system which accentuate the innovations and critical thinking
	Have not yet clearly stated sustainability as vision and mission, though at certain level, it has been implemented	Stating clearly in vision, mission and sustainability statements
	The commitment to sustainability is only partly shown	Adopting awarding schemes and recognition in line with the university goals
	Have not yet administered specific function	Conducting awareness campaign addressed particularly to students and staff in resource efficiency
		Embedding the circular sustainability into the whole university system, not only in infrastructure, research and education
		Administering sustainability manager
Lack of motivation	Limited financial and infrastructures supports	Giving financial support and building infrastructure
	Facing limited control over (particularly) customised educational programme (executive class)	Giving more responsibility to develop new programme which embed circular sustainability across the entire curriculum and revise the existing syllabus
	Partnership with clients who might not appreciate the sustainability	Identifying the same path in circular sustainability among postgraduate and undergraduate level
	The implementation of resource-saving programme has not yet covered at whole system	Showing commitment to sustainability and circularity to any related stakeholders involved
		Adopting in wide areas, such as energy efficiency and waste. In the beginning, conducting study to measure the resource use and identify the saving programme would be useful
Lack of abilities of people within the institutions	Staff reluctance to integrate sustainability into their teaching, such as lack confidence, knowledge, time, etc.	Providing stimulus to foster change and encourage them to start the initiatives, such as through sustainability ambassador or sustainability officer of the month
	Mismatch in addressing sustainability within their courses	The discussion on circular sustainability should be transdisciplinary, across the programme and organisation

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Table 8.4 (continued)

Barriers	Proposed solutions	
	The inconsistency of individual culture and attitude towards sustainability	Creating a sustainability culture
	The recent initiatives to foster change among students and staffs have not yet indicated strong effect	
	The transdisciplinary research has not strongly developed	
	Procurement has not yet considered as important factor	Adopting sustainable procurement
	Valorisation has not yet become a vocal point	Embedding the circular sustainability into the whole university system including valorisation

university concept. Table 8.4 presents the main identified problems as well as possible solutions as a result of mirroring process from the Dutch best practices to re-grounding the idea of circularity and sustainability.

In Table 8.4, an attempt is made to identify some potential solutions to the current barriers presented to the green university implementation in the Indonesian universities. Many of the suggestions are in line with examples found in the literature and obtained from interviewees of the Dutch universities. In the following and last section, the authors draw some conclusions from this research.

8.7 Conclusions

Universities can play an important role in shaping future business leaders to become active in the path towards sustainability by acting as a green university. However, in order to embed the concepts of circularity and sustainability, there is a need to expand the concept of green university to include broader aspects and be approached as a continuous process rather than seen as a short-/long-term goal.

It is clear that Indonesian universities are far behind the Dutch ones in terms of circular sustainability (green university) practices. The Indonesian universities are still focused more on the narrow approach, whereas in the Dutch case, there is a holistic philosophical approach referring to sustainability not as part of an environmental movement but rather as a way of life. There are many reasons and circumstances involved, though this study was limited to the managerial approach to grasp the concept of green university and how the university leaders decide to include it through the green university criteria.

To institutionalise the green university principles, it was found that that university leaders need to ensure the continuity of a clear institutional vision which needs to be instrumented with specific policy strategies in a holistic approach. This can be seen as a first step towards implementing circular practices at all levels.

Although this study was centred on the circularity and sustainability practices at only three leading business schools in Jakarta, it is able to provide significant empirical information on how the Indonesian educational systems at university level perceive and practise those concepts within their system. It also offers a new definition of green university, as well as suggests a general framework. This suggested framework can be used in further investigation and follow-up research, potentially providing a guidance towards the Indonesian university transition.

References

Alshuwaikhat H, Abubakar I (2008) An integrated approach to achieving campus sustainability: assessment of the current campus environmental management practices. J Clean Prod 16(16):1777–1785. https://doi.org/10.1016/j.jclepro.2007.12.002

Benn S, Dunphy D (2009) Action research as an approach to integrating sustainability into MBA programs. J Manag Educ 33(3):276–295

Bradbury H (2016) Sustaining inner and outer worlds: a whole-systems approach to developing sustainable business practices in management. J Manag Educ 27(2):172–187. https://doi.org/10.1177/1052562903251414

Davis G, O'Callaghan F, Knox K (2009) Sustainable attitudes and behaviour amongst a sample of non-academic staff: a case study from the information services department, Griffith University, Brisbane. Int J Sustain High Educ 10(2):136–151. https://doi.org/10.1108/14676370910945945

Escobedo A, Briceno S, Juarez H, Castillo D, Imaz M, Sheinbun C (2014) Energy consumption and GHG emission scenarios of a university campus in Mexico. Energy Sustain Dev 18:49–57

Geng Y, Fu J, Sarkis J, Xue B (2012) Towards a national circular economy indicator system in China: an evaluation and critical analysis. J Clean Prod 23(1):216–224

Gitsham M, Culpin V, Bond D, Ashridge Business School (2013) Building leadership capability for a rapidly changing world: what every business leader now needs to know about developing themselves and their people in a changed world. Ashridge Business School, Berkhamsted

Green Alliance (2012) Green Economy: a UK success story. https://www.green-alliance.org.uk/resources/Green%20economy%20a%20UK%20success%20story.pdf. Accessed Oct 2015

Hooi KK, Hassan P, Jami NA (2011) Sustainable education: an assessment of carbon footprint at UCSI university and proposed green campus initiative framework. Paper presented at the 3rd international conference on information and financial engineering. http://www.ipedr.com/vol12/62-C140.pdf. Accessed Aug 2015

Karavezyris V (n.d.) Circular Economy in Germany: achievements and future challenges. http://www.iswa.org/uploads/tx_iswaknowledgebase/Karavezyris.pdf. Accessed Aug 2015

Linsday C (2003) Assessing sustainability on Canadian university campuses: development of a campus sustainability assessment framework. http://neumann.hec.ca/humaniterre/campus_durable/campus_memoire.pdf. Accessed Aug 2015

Lozano R (2006) Incorporation and institutionalization of SD into universities: breaking through barriers to change. J Clean Prod 14(9):787–796. https://doi.org/10.1016/j.jclepro.2005.12.010

Mason IG, Brooking AK, Oberender A, Harford JM, Horsley PG (2003) Implementation of a zero waste program at a university campus. J Resour Conserv Recycl 38(4):257–269. https://doi.org/10.1016/S0921-3449(02)00147-7

Nejati M, Nejati M (2013) Assessment of sustainable university factors from the perspective of university students. J Clean Prod 48(3):101–107. https://doi.org/10.1016/j.jclepro.2012.09.006

Preston F (2012) A global redesign? Shaping the circular economy. https://www.chathamhouse.org/sites/files/chathamhouse/public/Research/Energy%2C%20Environment%20and%20Development/bp0312_preston.pdf. Accessed July 2015

Roy R, Potter S, Yarrow K (2008) Designing low carbon higher education systems: environmental impacts of campus and distance learning systems. Int J Sustain High Educ 9(2):116–130

Steiner G, Posch A (2006) Higher education for sustainability by means of transdisciplinary case studies: an innovative approach for solving complex, real-world problems. J Clean Prod 14(9–11):877–890

Stephens J, Graham A (2010) Toward an empirical research agenda for sustainability in higher education: exploring the transition management framework. J Clean Prod 18(7):611–618. https://doi.org/10.1016/j.jclepro.2009.07.009

Velazquez L, Munguia N, Platt A, Taddei J (2006) Sustainable university: what can be the matter? J Clean Prod 14(9–11):810–819

Wright T (2010) University presidents' conceptualizations of sustainability in higher education. Int J Sustain High Educ 11(1):61–73. https://doi.org/10.1108/14676371011010057