

Application of systems theory for analysing the  
sustainability foci and practices of the Faculty of  
Economics and Information Technology Systems  
(A Case Study of Walter Sisulu University: Komani campus)

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## **ABSTRACT**

Sustainable development is a global concern that intertwines several factors, including poverty, biodiversity, inequality, water, and energy. This interconnection does not only affect the current generation but may have long term implications for future generations as we see the rapid spread of environmental risk in our local communities.

In this study, systems theory was adapted for analysing the sustainability focus of the Faculty of Economics and Information Technology Systems (FEITS) at Walter Sisulu University. A qualitative research method was used during this research, and data collected from a purposive sample of staff, activities and documentation. In this study, Von Bertalanffy's systems theory is applied to analyse the sustainability foci and practices of the FEITS. The study describes sustainability practices and concerns that emerge from research activities, community engagement activities and work-integrated learning. The theory is also used to analyse the connection between various sub-systems of the faculty when addressing emerging local sustainability concerns.

Education for sustainable development is an important aspect of this study as it considers the sustainability concerns in the curriculum from the perspective of current and future alternatives for the economy and socio-ecological aspects of communities.

The following findings have emerged from the study: Contextual realities related to inequality were foci of discussion and concern in various qualifications. Socio-ecological issues and risks were found to be related to water and sanitation, food security and climate change. Sustainability discourse is related to health and well-being, peace, and security. There is an alignment of green skills to the curriculum of the faculty and pedagogical practices which relate to sustainability. The faculty participates in stakeholder platforms to respond local sustainability challenges and is developing courses in response to local development needs.

This study has implications for the faculty's curriculum in terms of the content of various qualifications, future research, and community engagement activities of the university.

## **KEY WORDS**

Sustainable development, systems theory, sub-systems, higher education curriculum, research activities, community engagement.

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## **LIST OF ACRONYMS**

BBBEE	Broad-Based Black Economic Empowerment
BCom	Bachelor of Commerce
CHDM	Chris Hani District Municipality
DEDEAT	Department of Economic Development Environmental Affairs and Tourism
ECDC	Eastern Cape Development Corporation
FEITS	Faculty of Economics and Information Technology Systems
HEIs	Higher Education Institutions
HDI	Human Development Index
IFCD	Institute for Co-operatives Development
IDP	Integrated Development Plan
MDGs	Millennium Development Goals
NMU	Nelson Mandela University
SEZ	Special Economic Zone
SDGs	Sustainable Development Goals
SCM	Supply Chain Management
SMMEs	Small Medium, Micro Enterprises
UNESCO	United Nations, Educational, Scientific and Cultural Organisation
UNDP	United Nations Development Programme
WESSA	Wildlife and Environment Society of South Africa
WIL	Work integrated learning.
WSU	Walter Sisulu University

# **CHAPTER 1: INTRODUCTION AND BACKGROUND**

## **1.1 Introduction**

Sustainability issues are of worldwide concern, affecting all humans in all global spheres, requiring unity and cooperation to build a sustainable future for all (Gupta & Vegelin, 2016). This study has an interest in the role of Higher Education Institutions (HEIs) in contributing to improved sustainability, especially in local communities. This interest is explored through a case study focusing on Walter Sisulu University (WSU), Eastern Cape Province, South Africa. Specifically, the curriculum focus of the study is based in the Faculty of Economics and Information Technology Systems (FEITS). However, it positions this faculty within the broader research and community engagement intentions and challenges of the university. The WSU has integrated sustainable development initiatives into its Institutional Strategic Plan. The university acknowledges that “Education, research, innovation, and leadership are crucial” in assisting the society to address sustainable development challenges (Walter Sisulu University, 2021, p. 5). Education and research are two of the main functions of the universities (Bitzer & Botha, 2010). These functions are visible in the day-to-day activities of WSU.

Currently I am employed as a Junior Lecturer in this faculty, and I am a member of the faculty’s Community Engagement Committee. As an employee of the university, I seek to understand, firstly, the sustainability concerns that emerge from the course content of different qualifications in the FEITS. Secondly, I seek to understand existing and possible faculty contributions to local sustainability challenges through curriculum-linked community engagement activities. Lastly, I seek to understand research focus areas and methodologies that exist in the faculty’s courses that respond to, or have the potential to respond to, local sustainability concerns.

The Covid-19 pandemic has captured the world's attention; however, pre-existing sustainability calamities persist (United Nations Development Programme, 2020). Many of our societies are faced with challenges resulting from planetary imbalances in energy and environmental justice, equality and justice, and exploitative production and consumption patterns (ibid).

This chapter begins by exploring these challenges within the locality of the study, that is, exploring the social ecological context of the Eastern Cape Province. It then presents the research problem, questions, and objectives and explains them in relation to the gap. This chapter also gives a global perspective on implementing the sustainable development goals, particularly focusing on the following areas: gender challenges, renewable energy, clean water, and food security.

## **1.2 Social-ecological context of the Eastern Cape**

The states that the Eastern Cape Province is negatively affected by socio-economic factors. Joblessness is related to gender inequality, as reflected in the department's *Local Economic Development Information Booklet*, which reports a gap in unemployment of 4.1% between men and women, where the female unemployment rate is 25.0% and the male unemployment rate is 29.3% (ibid).

The Enterprise Development Section is responsible for employment creation in the Eastern Cape Province (Department of Economic Development Environmental Affairs and Tourism, 2015). One of the key foci of this section is the creation of an enabling environment for Small Medium and Micro-Enterprises. The Department of Economic Development, Environmental Affairs and Tourism (DEDEAT) is also involved in addressing biodiversity challenges through an integrated approach with the Department of Public Works through the Extended Public Works Programme. This integration encourages the formation of cooperatives as a form of business enterprise to benefit a greater number of individuals (ibid). This form of partnership has potential to contribute towards sustainability areas such as "employment creation, clean water, skills

development, youth development, tourism development, environmental preservation and health care” (Phillips, 2004, p.12).

However, these efforts have not proved to be entirely viable, considering that, of the 4244 cooperatives registered in the Eastern Cape Province between 2002 and 2010, 289 survived and 3957 perished, giving a survival rate of only 7% (Eastern Cape Socio-Economic Consultative Council, 2010).

The survival of cooperatives as a form of a business requires an intensive training model which can be acquired through educational programmes that are close to the area of operation. Such programmes may focus on areas such as biodiversity management as well as the creation of green jobs (Department of Economic Development Environmental Affairs and Tourism, 2015). These green jobs need to be filled by agricultural extension officers that specialize in biodiversity issues, resource economists that specialize in biodiversity issues, social scientists that specialize in environmental issues, and entrepreneurs (ibid).

According to the Department of Labour (1998), green jobs require scarce skills, needing extensive training, which is available in a few academic institutions in the Eastern Cape Province. This raises a concern for the sustainability of the current endeavours to address biodiversity challenges. According to the Department of Labour, individuals who have acquired relevant skills to deal with some of these pressures can greatly contribute to the improvement of productivity and sustainability through the rendering of learning programmes that are not necessarily classroom-based (ibid). These rare skills are urgently needed in South Africa to address the effects of accelerating climate change.

Chris Hani District Municipality (2019) states that climate change pressures are silently but rapidly affecting South Africa’s vegetation, draining the water supply, threatening the country’s biodiversity, and reducing the productivity of the agricultural sector. Midgley et al (2007) predicted that the Eastern Cape Province may possibly experience sea level rise impacts and high temperature increases, similar to those experienced in the KwaZulu Natal and the Western Cape

Provinces. Certainly, these factors are visible in the Eastern Cape Province. However, the difficulties are not limited to increasing sea levels and elevated temperatures. According to Christensen et al (2007) the effects listed in Table 2.1 are some of the changes noted in the Eastern Cape:

Primary effects	Secondary effects
Increased number of windy days	Increased crop failure
Rise in storm severity	Decline in rural livelihood
Prolonged severe droughts	Rise in migration and urbanisation
More severe rain	Increased conflict over resources
Additional hot days and heat waves	Increase in pest invasion
Ocean acidification	Destruction of the ecosystem

*Table 2.1: Climate change effects in Eastern Cape Province*

In 2010, the Eastern Cape Provincial DEDEAT developed the Eastern Cape Response Strategy to respond to the accelerating climate change factors (Department of Economic Development Environmental Affairs and Tourism, 2015). This strategy is aligned to important national climate change legislation such as: The National Environmental Management Act 107 of 1998, National Environmental Management: Waste Act of 2008, and the South African Renewable Energy Feed-in Tarif, Regulatory Guidelines, 26 March 2006 (ibid).

The Eastern Cape government is implementing a vision for 2030 that addresses sustainability issues as identified by various stakeholders and focuses on rural development (Eastern Cape Planning Commission, 2011). These stakeholders have earmarked areas such as: empowering citizens through innovative education, enhancing responses to health concerns, ensuring vibrant and equitable communities, addressing gender discrimination and bias, and extending opportunities for poverty reduction (ibid).



### **1.3 Research problem, objectives, and questions**

Various South African stakeholders such as the Department of Rural Development and Forestry, the Department of Public Works, the Department of Water Affairs, and HEIs such as the University of Stellenbosch have aligned their sustainability programmes (Department of Environmental Affairs, 2011). The University of Stellenbosch is also working closely with various stakeholders in offering a variety of academic qualifications such as bachelor's degrees, diplomas, and short courses on sustainability initiatives (ibid).

Universities are the centres of knowledge in our communities; therefore, they are expected to convey knowledge to their local communities while also providing technical support to them (Amaral et al, 2005). According to Togo and Lotz-Sisitka (2013), universities are one of the most important types of institution providing such support, through their teaching and training programmes.

#### **Problem statement**

The Eastern Cape Province is greatly affected by socio-ecological issues such as food security, climate change, water and sanitation (Department of Economic Development Environmental Affairs and Tourism, 2015). Climate change pressure is affecting the vegetation, the supply of water and biodiversity of the Province (Chris Hani District Municipality, 2019). Rural development is prioritized by the Eastern Cape Province as the key to addressing sustainable development (Eastern Cape Planning Commission, 2011). However, none of the 17 sustainable development goals (SDGs) (discussed below) can be achieved without the support of higher education and research (Grobbelaar, 2005).

With this background this study sought to describe how Walter Sisulu's FEITS is supporting scholars and communities to respond to social-ecological issues and risks associated with these development challenges. The study focused on how sustainability is reflected in the curriculum, community engagement and research foci and practices of the FEITS.

## Objectives

The following are the objectives of the research project:

- Firstly, to identify sustainability concerns that are reflected in the course outlines, content, teaching approach and assessment practices of various qualifications in the faculty.
- Secondly, to recognize practices and possibilities within the faculty which contribute towards addressing local sustainability challenges through curriculum-linked community engagement initiatives.
- Lastly, to identify focus areas in the faculty's research projects that respond, or have the potential to respond, to local sustainability concerns.

## Research Question

The main research question is:

- How is sustainability reflected in the curriculum, community engagement and research foci and practices of the Walter Sisulu University (Komani Campus) Faculty of Economics and Information Technology Systems?

In short, the study aims to describe how Walter Sisulu University's FEITS is providing capacity to respond to sustainability challenges. Such capacity can be seen through a focus on teaching and training programmes, community engagement and research activities.

### **1.4 An introduction to the Sustainable Development Goals.**

This section considers a global Development Goals (SDGs), which underpins the interest in a sustainability focus at the study site. The United Nations (2019) reflects the following 17 SDGs:

SDG 1: No poverty

SDG 2: Zero Hunger

SDG 3: Good health and well-being

- SDG 4: Quality education
- SDG 5: Gender equality
- SDG 6: Clean water and sanitation
- SDG 7: Affordable and clean energy
- SDG 8: Decent work and economic growth
- SDG 9: Industry innovation and infrastructure
- SDG 10: Reduced inequalities
- SDG 11: Sustainable cities and communities
- SDG 12: Responsible consumption and production
- SDG 13: Climate action
- SDG 14: Life below water
- SDG 15: Life on land
- SDG 16: Peace, justice, and strong institutions
- SDG 17: Partnership for the goals

The section offers critical perspectives on assumptions about the sustainability of an economic growth economy. These critical perspectives are used in analysing the sustainability focus of the data generated for this study. Additionally, this section explores the socio-ecological issues that are pertinent to the Eastern Cape context of this study, namely: gender challenges, renewable energy, clean water, and food security. Some of these socio-ecological issues are also described in Section 4.2.2, as they form part of the findings of the study.

Sustainable development is increasingly becoming recognised world-wide as a concept that highlights economic development, social equity, and environmental integrity (National Planning Commission, 2010). This concept has long been recognized as a key item on the international agenda, dating back to the United

Nations Conference on the Human Environment in 1972 (UNESCO, 2017). At the World Summit on Sustainable Development, which was held in South Africa in 2002, several key outcomes were identified, and a political declaration made to revive the global commitment towards sustainable development (Leiserowitz et al, 2005).

Each country that made the above commitment is expected by the United Nations to take responsibility for its own development towards implementation of the Sustainable Development Goals (SDGs) (Stafford-Smith et al, 2017). It is vital for the process of implementing the SDGs that they be aligned to national planning structures to enable a conducive environment for addressing these goals (ibid).

The World Commission 2020 Growth Path reflects that, in the last quarter of 2020, international economic growth has doubled. However, Jackson (2009) argues that approximately 60% of the global ecosystem has degraded and that economic growth does not necessarily result in sustainability nor in prosperity. The 2020 United Nations Development Report reflects that economic growth is important for sustainable development. However, the United Nations Development Programme (2020) maintains that living a healthy life and being educated are of more critical importance. Human development should focus on empowering people and enabling them to identify and pursue a path that will be meaningful to them (ibid). The Human Development Index (HDI) can be used to measure the above-mentioned areas of people empowerment (The Economic Times, 2020).

The HDI can also be used to analyse inclusive development in a society (UNDP, 2020). Initially, the HDI focused on measuring a country's achievement in terms of social and economic dimensions, which are based on the people's health, their level of education and their standard of living (ibid). From its inception, the HDI was critiqued for not accurately reflecting human development (Lind,1992). Xiao et., al (2017) and Srinivasan (1994) believed that the HDI overgeneralized the

view of development, as it relied on only limited indicators. In response to numerous critiques, “the UNDP developed additional complementary tools” (Kovacevic, 2014, p.6). These tools included a human poverty index, gender-related development, and empowerment measures (ibid).

Human development should also create a conducive environment for people to cultivate values that will assist them to enhance equity, foster innovation and instil a “sense of stewardship for nature” (UNDP, 2020, p.8). However, that cannot automatically address current planetary challenges. The most prevalent challenges of the Anthropocene are: mitigating and adapting to climate change, protection of biodiversity and ensuring human well-being, to mention a few (ibid).

“Economic growth is a myth!” states (Jackson, 2009, p.5). This is because only a few benefit from this growth; it has “let much of the world population down” (Jackson, 2009, p.6). Hence, there has been an increase in the level of inequality in the world (UNDP, 2020). Very few countries' standards of living have risen, and as a result inequality has increased (Jackson, 2009).

According to Black et al (2011), an increase in economic growth has a positive impact on business cycles, and as a result, consumer confidence is boosted. This might be one of the reasons for increased lending, as reported in the 2009 report on prosperity without growth. Jackson (2009) echoes that there has been supreme lending globally that led to non-manageable debt, which is contrary to the 2030 agenda on sustainable development which encourages responsible consumption (UNESCO, 2017). Sustainable Development Goal 12 encourages responsible consumption and lending, which is contrary to the reckless lending that occurred in mid-2008, when loans were offered to consumers unable to afford them.

Jackson (2009) states that the following perspectives on the SDGs are important steps to a sustainable economy, and should be adopted if economic growth is to be supported as a viable approach to development:

- Assessing the impact of economic growth on natural resources and the functioning of the ecosystem. This corresponds with SDG 7 (Affordable and clean energy), SDG 8 (Decent work and economic growth), SDG 14 (Life below water), and SDG 15 (Life on land).
- Investment in job security, sustaining public assets and infrastructure, and investing in renewable energy. These points correspond with SDG 7 (Affordable and clean energy), SDG 8 (Decent work and economic growth) and SDG 9 (Industry innovation and infrastructure).
- Enhancing public control of money supply and debt, and encouraging savings. These points correspond with SDG 12 (Responsible production and consumption).
- Improving education and training programmes, improving employee incentives and benefits, and supporting the creation of green jobs. These points correspond with SDG 1 (No poverty), SDG 2 (Good health and well-being) and SDG 8 (Decent work and economic growth).
- Addressing systemic inequality, increasing access to good quality education, and enhancing implementation of anti-discrimination regulations. These points correspond with SDG 4 (Quality education) and SDG 5 (Gender equality).
- Enhancing social well-being and prosperity. These points correspond with SDG 3 (Good health and well-being).
- Recognising ecological limits. This point corresponds with SDG 13, 14 and 15 (Climate action, Life below water and Life on land).
- Promoting technological transfer and innovation. These points correspond with SDG 9 (Industry innovation and infrastructure).

These important ways of achieving sustainability and contributing to appropriate economic growth are explored further in Sections 2.2.2; 2.2.6; 2.3, and 2.4. Gupta and Vegelin (2016) agree that sustainability concerns are not limited to economic growth; they also incorporate areas such as clean energy, zero hunger, gender equality, clean water and sanitation. Jackson (2009) states that material

growth is indeed essential for addressing the needs of developing nations. However, it is vital to develop a path to success that does not focus only on economic growth. Jackson (2009) continues to emphasize the urgency of reducing the environmental impact of economic activities that increase the carbon footprint of human beings on the planet (ibid). It is therefore important to consider how the carbon footprint can be reduced without necessarily decreasing activities which promote economic growth.

Gordan, the former South African Minister of Finance, endorses the notion of adopting innovative sustainable development strategies (Ida, 2020). In his Medium-Term Budget Policy Statement in 2010, Gordan emphasized the importance of innovation while doing extraordinary things to deliver jobs, shelters (with basic needs), business opportunities, skills development and the promotion of an environmentally responsible development path (Department of Environmental Affairs, 2015). To be sustainable, human settlements should be able to meet the different needs of their residents in all areas (ibid).

#### **1.4.1 Gender challenges**

The implementation of the Sustainable Development Goals involves many challenges, such as those related to gender issues (O'Neil et al, 2019). Women and girls are still discriminated against, often lacking adequate access to sustainable economic opportunities, health services, education, and justice. Social factors and the individual attributes of girls and women often determine their level of empowerment, socioeconomic status, and the sector they work in, especially if they are immigrants (ibid). Female migrants often struggle to acquire good paying jobs (Temin et al, 2013). An example is that of Ethiopian migrant girls who often get employed as domestic workers. They then become socially isolated and are forced to depend on their employers, who may then abuse them sexually (ibid).

Gender inequalities have a great impact on global progress towards the implementation of the SDGs (UNDP, 2020). Solutions for gender-related

challenges are needed, challenges which may be related to poverty and insecurity, lack of an enabling environment to access economic and sustainable growth, inadequate access to health facilities and quality education, and injustice (ibid).

Gender-related challenges are being successfully addressed in a number of countries, such as Russia, Niger and Canada (Xiao et al, 2017). In Russia, women now occupy about 43% of the positions in the agricultural industry. Meanwhile, in Qatar, women now have a right to vote and hold positions in parliament. In Madagascar, there is high gender equality, as the law protects women from discrimination on the grounds of sex, education, wealth, religious beliefs, origin as well as individual opinions (ibid). The global percentage of working women in both the formal and the informal sectors of the world economy has increased over the years (UNDP, 2020).

In South Africa, women comprise a majority of small business owners and they make up the bulk of formal sector workers (Department of Women, 2019). Agreeably, there has also been a noteworthy rise of female participation in the South African labour force in the post-apartheid epoch (Espi et al., 2019).

However, there is still discrimination on the grounds of race relating to the employment of women. Black and coloured women continually find themselves in lower paying jobs compared to women of other races (ibid). Generally, South Africa's labour market does not favour women economically, as men earn better than women, irrespective of race (Department of Women, 2015). However, women are noticeable in high-skilled occupations such as agriculture and fisheries in the general South African Labour market (Department of Women, 2019).

In South Africa, the labour market is dominated by racial segregation, which discriminates against women of colour (Department of Women, 2019). This discrimination is perpetuated by the country's history of apartheid that excluded particularly women of colour from decent work opportunities (ibid). However, gender segregation in South Africa is not only influenced by racial issues, but



also by cultural aspects. For example “negative attitudes from service providers and traditional leaders/chiefs still prevail”, especially in relation to issues of land ownership (Department of Women, 2015, p.5). In the Eastern Cape Province, one of the most rural provinces in South African, gender discrimination is prevalent (Eastern Cape Socio-Cultural Council, 2010). The Eastern Cape Socio-Cultural Council (2010) further states that there are destructive cultural and traditional practices that reduce opportunities for women to be employed or educated. Such practices force women into early marriage and early pregnancy. Despite harmful cultural and traditional practices that exist in the Eastern Cape Province, women are visible in just about the entire labour market in the Eastern Cape Province, though they are limited in the construction and transport sectors (ibid).

#### **1.4.2 Renewable energy**

Electricity can be produced by consuming available natural resources without necessarily exhausting the entire abundance of available resources (Department of Minerals and Energy, 2003). Electricity that is produced from natural resources is a type of renewable energy. This type of energy plays a significant part in the reduction of poverty and addressing basic human needs (ibid).

Solar drying is source a of renewable energy that is found in countries such as Australia, Brazil, and Turkey (Zunga, 2010). Solar drying is an ancient method; however, many modern industrialized countries still make use of it, using the sun to dry crops such as grain, hay, and vegetables. Countries in the Mediterranean basin use solar energy, evaporating seawater or rainwater to manufacture salt. This is a traditional method of obtaining salt; however, it is an essential industrial process, used for salt-harvesting in countries like India, Mexico, Columbia, and the United States (ibid). Though solar drying is mostly used in industries, it is an important source of energy that can be used in small-scale farming and agribusiness (Department of Agriculture, 2001).

The South African Department of Energy reported on solar water heaters as an affordable source of (Klishi et al., 2013). In the process of manufacturing and

installing Solar Water Heaters, there are always employment opportunities (Zunga, 2010). The types of jobs created during such initiatives are known as green jobs, which also reduce poverty (ibid).

A type of renewable energy production observable in a number of South African townships is solar water heaters (Department of Minerals and Energy, 2020). Several owners of such heaters have benefited positively from this innovation, as they spend less on electricity and thus have additional disposable income (Zunga, 2010). The Eastern Cape Province has benefited from such money-saving technologies, especially in the Komani and Port Elizabeth areas (Klishi et al, 2013). Solar water heaters are used largely in low-cost houses at Ezibeleni township in Komani and Motherwell township in Port Elizabeth (ibid).

The Eastern Cape Province has become one of South Africa's major energy generators through the Renewable Energy Independent Power Producer Procurement Programme (Daniel, 2020) which is estimated to cater for approximately 58% of the electricity required in the Eastern Cape Province. This energy programme has resulted in several opportunities for local communities. These opportunities include skills development, Small Medium and Micro Enterprises/local supplier development opportunities, job opportunities and investment opportunities. The programme also lowers the local carbon footprint (ibid).

### **1.4.3 Clean water**

Remarkable progress is observable globally in terms of access to clean water (Xiao et.,al 2017). A number of countries internationally are rapidly reaching the SDG targets - including access to clean water. Countries like Egypt, Iran, Georgia, and Malaysia have ventured into cross-border water-sharing agreements that are linked to natural factors in the affected countries (ibid).

Medical Nziba, a South African activist, stated that the villagers in the cluster of villages that make up Somkhele township in KwaZulu-Natal, South Africa, are desperate for access to free clean water (Bega, 2020). Women currently walk for

as many as six hours to fetch water, exposing themselves, in the process, to the likelihood of sexual harassment and rape (ibid).

In the Eastern Cape, residents of the Umzimvubu local municipality have long been expecting construction of the massive Umzimvubu dam, a project that has been in the pipeline since 1962 (Ngcukana, 2019). President Cyril Ramaphosa stated during an ANC Rally that the project would be made a priority if the ruling party won the May 2019 election (ibid). The Umzimvubu dam still has not been built, despite an ANC victory in 2019. Bega (2020) echoes concerns that the government is not prioritizing basic needs such as clean water for communities. The lack of access to clean water is “undoubtedly exposing the villagers to illnesses and could potentially lead to the spread of the coronavirus” (Bega, 2020, p.1).

The Minister of Water and Sanitation, Lindiwe Sisulu, announced an intervention to address access to clean water during her visit to QwaQwa in February 2020 (Macupe, 2020). The minister promised the procurement of approximately 4274 water tanks for Free State villages, but none of these tanks have yet reached the township (ibid). According to Mullur (2020), the solution to the current water crisis lies in understanding and managing the country’s water resources (ibid).

#### **1.4.4 Food security**

Access to food remains a great privilege to many people (Varon, 2001). Worldwide, approximately 35 000 people are estimated to be undernourished and in severe cases they die from hunger (ibid). The Food and Agricultural Organization indicates that, in the past two decades, there has been a significant improvement in world-wide food security (Phillips, 2012). However, in Europe and Central Asia there are still concerns related to access to nutritious food (ibid).

The Sub-Saharan Africa region is dominated by undernourished people, which has resulted from accelerating food insecurity in the region (Fawole et al, 2015).

Despite numerous political and economic developments since 1994, South Africa remains plagued by steep food prices that have negatively affected citizens' survival (Baiphethi and Jacobs, 2009).

South Africa is food secure at a national level, but the country is food insecure at a household level, as not all households have access to adequate food (Statistics South Africa, 2019). Most of the households that are experiencing food shortages are in the rural areas, specifically in the former homelands (Baiphethi and Jacobs, 2009). According to Statistics South Africa (2019), 6.8 million South Africans experienced hunger in 2017. These figures are alarming, considering that the current South African population was 59 945 412 as at May 2021 (Statistics South Africa, 2019). The figures from Statistics South Africa (2019) reflect that food security is still a great challenge for many of South African citizens.

The Eastern Cape Province is one of the most rural provinces in South Africa; 20% of households rely on subsistence farming to supply their food (Statistics South Africa, 2019) food. Baiphethi and Jacobs (2009, p.461) project that “agriculture will contribute towards addressing food insecurities” through rural subsistence production. However, it has been established that one in two households in the Grahamstown district experiences difficulties such as start-up costs, drought, and lack of fencing which threaten the sustainability of their subsistence farming (ibid).

### **1.5 Sustainability practices in higher education institutions**

It is important for all HEIs to align their curricula to the 2030 Agenda for sustainable development (UNESCO, 2017). This agenda acknowledges universities as centres of knowledge in our communities, committed to conveying knowledge to their local communities while providing technical support (ibid). This type of support provides a mechanism for responding to the direct needs of the society. Hence, “university curriculum across the globe is experiencing significant pressure to transform its insular, distant form” (Maphosa et al, 2014).

The global community is uniting as university leaders commit to integrate sustainable development into their institutions' curricula (Cotton et al, 2007). This commitment reflects a strong advocacy for ESD in the curriculum (ibid). ESD is recognised in universities all over the world as one of the factors contributing to sustainability (Togo & Lotz-Sisitka, 2013).

Good sustainability-management practices in university campuses have been recognised in the United States, Europe, Asia, and Africa (Salame, 2011). Motivating examples of international universities that are not celebrated often enough are: The University of Hong Kong that has a system for conserving the natural environment; the University Autonoma of Madrid that has an innovative eco-campus that engages students and staff in sustainability practices; Mabada University in Lebanon which generates electricity through recycled water (ibid). The implementation of sustainability practices begins within the institution by influencing staff and student behaviour and then involving local communities (Tilbury, 2012).

#### **1.5.1 Sustainability practices in higher education institutions beyond Africa.**

ESD has been one of the top priorities on the global agenda since the 1992 Rio Conference (UNDP, 2020). A Global Higher Education for Sustainability Partnership Initiative was established to facilitate the integration of sustainability into higher education curricula worldwide (UNESCO, 2017). In 1995, UNESCO introduced the International Environmental Education Programme (IEEP) to the international community, which was meant to introduce various types of education activities regarding setting a future EE blueprint (ibid). Wu and Shen (2016) mention that there are three identical and interchangeable terms in the field of higher education for SD, namely: education for sustainability, education for sustainable development and sustainability education. However, ESD is the term most commonly used at an international level and reflected in United Nations documents (ibid).

Ninety universities across the globe adopted the Kyoto Declaration in 1993 to achieve an important objective in global sustainable development (UNESCO,2006). The Kyoto Declaration emphasises the global perspective for higher education, which focuses on the responsibility that universities have to students and the larger community (ibid). Prior to the adoption of the Kyoto Declaration in 1993, the United Nations (UN) established a Commission on sustainable development whereby a plan referred to as *Education for Sustainability (EfS)* was proposed (Wu & Shen, 2016). In 1992 a plan titled: *Education for a Sustainable Future: Environmental Population and Development (EPD)* was proposed (ibid) and has been integrated into missions, planning, curricula, research, student life and the operations of various international higher education institutions (Rowe, 2017). In 2002 the UN Decade for Sustainable Development (DESD) was established to focus on “promoting and improving the quality of education, reorientating education programmes, increasing public understanding, awareness and provision of practical training” (UNDP, 2020.p.3). The UN: DESD was meant to run from the period of 2005-2014 (ibid).

In an analysis of the international sustainability declarations and frameworks for higher education, Tilbury (2012) reflects on the progress made by HEIs towards the transformation of education experiences towards sustainability. The implementation of sustainability practices begins within the institution, by influencing staff and student behaviour and then local communities are invited to participate (ibid). The United Nations Environmental Programme (UNEP) has assisted numerous universities to enhance the quality of university education by mainstreaming sustainability across all the operations of universities (Togo, 2009).

HEIs have been progressively undertaking active measures to contribute to sustainable development (Amaral et al, 2005). In 2003, the United States (US) established a national network partnership that included higher education institutions, sector institutions, religious organisations, businesses and

communities for the purpose of responding to the DESD and beyond (Rowe, 2017). In the US, hundreds of HEIs are involved in sustainability committees that facilitate Green Campus Programmes, focusing on the following:

- Learning that focuses on the acquisition of sustainability knowledge
- Sustainability skills application
- Film festivals that are sustainability-orientated
- Sustainability-related campus events
- Specialised sustainability qualifications
- Global and regional collaborative approaches to sustainability
- Collaborations with high schools and primary schools for sustainability initiatives (ibid).

In Australia, the Western Sydney University is implementing sustainability practices by supporting local communities that are close to the university (University of Sydney, 2020). The university's journey of implementing sustainability practices inside and outside the university is made possible by the partnership between internal and external stakeholders. The University of Sydney offers qualifications with a sustainability focus, and it is also partnered by industry and communities in running sustainability-related projects (Galang, 2010). One of the spinoffs from these partnerships is a watershed management system and a community-wide recycling and compost scheme that addresses the waste issue (Salame, 2011). Through its research initiatives, the University of Sydney developed renewable energy sources in the form of smart solar benches (Galang, 2010). The latter have been tested and installed for use within the university's campus, and will be distributed to the commercial market, the agricultural sector, and residential areas. As a result of its innovative renewable initiatives and community support, the university won the inaugural 2020 AFR Higher Education Award under the Sustainability category (ibid). Partnerships in addressing sustainability have united students, staff, residents, and local communities (Galang, 2010).

A remarkable example that united various stakeholders in addressing local sustainability challenges can be found in the UK at the University of Gloucestershire. This united front was made possible through the creation of an edible garden that promoted food awareness and learning skills in permaculture design (ibid).

In Asia, partnerships formed through the Dark Green Schools (DGS) initiative in HEIs in the Philippines contribute to addressing sustainability (Galang, 2010). The DGS initiative is inspired by the global framework on sustainable development, as well as several government laws that focus on environmental conservation, the sustainable use of natural resources, and environmental education (ibid). The DGS initiative has united students, staff, residents, local communities, and local stakeholders (Galang, 2010). Among the accomplishments of the DGS initiatives are:

- a decrease in consumption of plastic and increase in the use of recyclables.
- a reduction of on-campus smoking.
- an efficient solid waste management system across university campuses (ibid).
- “planting of native trees, gardens and biodiversity parks” (Cuaresma, 2019.181).
- installation of solar panels across university campuses for energizing the green house irrigation system and streetlights (ibid).

Some lecturers at the Peninsula Medical School and Technology in the UK believe that sustainable development is a controversial topic and it is irrelevant for their discipline (Cotton et al, 2007). Contesting this, Lotz-Sisitka (2012) states that the potential of HEIs to influence economic development, poverty alleviation and health systems should not be overlooked.

### **1.5.2 Sustainability practices in higher education institutions in Africa.**

African universities have embraced sustainability as an opportunity to enhance university-community relationships (Lotz-Sisitka, 2012). In her analysis of



various interpretations of sustainable development by African Universities, Lotz-Sisitka (2012) refers to events, networks, practices as well as experiences in these universities. She has discovered that African Universities are making a remarkable contribution to local communities by focusing on issues of peace and security as well as HIV/AIDS (ibid).

The following are some universities that have been identified to be implementing sustainability practices in the SADC regions: University of Malawi, Uganda Martyrs University, and the University of Zambia. They are involved in the Mainstreaming of Environmental and Sustainability in Africa (MESA) University Programme. The above-mentioned universities have implemented change projects that impacted positively on either curriculum improvement, policy development, community engagement or research (Lotz-Sisitka et al, 2015).

The University of Malawi has made noticeable strides in focusing on green initiatives, supporting ventures between community-based organizations, media organizations, academia, faith groups and policy makers (Lotz-Sisitka et al, 2015). The Malawian GCI (Green Campus Initiatives) occur both as formal and informal environmental education programmes (ibid). The Malawian GCI also conducts outreach programmes on environmental management, capacity building sessions and several projects that focus on environmental management and climate change (Lotz-Sisitka et al, 2015).

Uganda Martyrs University has improved local livelihoods in the following areas: household disposable income, food security, and water conservation (Adekunle and Fatunbi, 2012). The African perspective of these universities has made a positive impact on global procurement and international partnership through the work of their national and international students (Galang, 2010). African university graduates often use the skills they have acquired to address social, economic, and environmental challenges (Chibamba & Sakala, 2015). For example, the University of Zambia equips its students with such skills during their enrolment in master's degree studies (ibid).

### **1.5.3 Sustainability practices in higher education institutions in South Africa**

In this section I consider the three South African Eastern Cape universities that are closest to the study site (Walter Sisulu University WSU). Rhodes University adopted a systems approach, integrating sustainability practices into the whole institution by uniting the internal and the external environment of the university (Togo & Lotz-Sisitka, 2013). The university is implementing sustainability practices using an integrated approach in several departments (Togo, 2009). It is also home to the Environmental Learning and Research Centre that is implementing sustainability projects, programmes, research and community engagement endeavours (Togo & Lotz-Sisitka, 2013).

The Nelson Mandela University (NMU) George Campus, also neighbour to Walter Sisulu University (WSU), is contributing significantly to sustainability through excellent teaching and learning, community engagement and research (Lotz-Sisitka et al, 2015). The sustainability initiatives implemented at the NMU are visible in the programmes of the Student Change Project which began in 2011. The project is championed by students through integration with internal and external stakeholders of the university who created an enabling environment for sustainability on campus and in the neighbouring areas (ibid).

Fort Hare is another university in the Eastern Cape that has developed strategies for managing an innovative ecosystem around the university through multi-stakeholder platforms (Grobelaar, 2005). The innovative ecosystems include value creation dynamics, architecture platforms and various level of strategies (ibid). According to Grobelaar (2005), the multistakeholder platforms consist of technological platforms, supply chain platforms and industry platforms. These multi-stakeholder platforms create an enabling environment for participating stakeholders to identify problems and provide insight regarding issues related to biophysical, technological as well as institutional challenges (ibid). This integrated approach assists stakeholders to realise their independence, while

also acknowledging the importance of collective action in solving problems (Adekunle and Fatunbi, 2012). Grobbelaar (2005), states that through the community engagement directorate and implementation of the universities' strategic plan, the University of Fort Hare (UFH) is strengthening participation in addressing sustainability challenges. UFH, along with other universities in South Africa, is acknowledged by the National Development Plan (NDP) to be a key driver of development (National Planning Commission, 2011). UFH's innovative development endeavours are linked to South African development frameworks such as the National Research and Development Strategy and the NDP (aligned to the UN 2030 Agenda) (Grobbelaar, 2005).

The UN 2030 Agenda: Transforming Our World for Sustainable Development has inspired the WSU to integrate sustainability into its 2020-2030 Institutional Strategic Plan (Walter Sisulu University, 2020). The WSU strategic plan endeavours to:

- Track how teaching and learning, research, and community engagement contribute to sustainable development.
- Improve environmental performance to achieve a green-star rating.
- Seek to generate renewable energy.
- Install renewable facilities to university buildings in order to improve environmental performance and reduce waste.
- Roll out the Photovoltaic (PV) project (piloted at BCC) across all campuses.
- Enhance the beauty and ambience of all campuses.
- Provide appropriate catering services.

## **1.6 Sustainability practices in the Eastern Cape Public Sector**

The notion of sustainable development has been integrated into the international agenda since the United Nations Conference on the Human Environment in 1972 (Department of Environmental Affairs, 2016 - see Section 1.4). However, the concept has cascaded from international to national, and even to provincial level

(ibid). The Eastern Cape Province “prioritizes rural development as the key to sustainable development” (Eastern Cape Planning Commission, 2011, p.6).

An example of a rural development initiative that prioritises sustainable development is the Sidalukukhanya Agribusiness Development Project. The latter is based in Keskammahoeck in the Amahlathi Local Municipality (Bizcommunity, 2009). The focus of the project is to promote sustainable development through paprika farming (ibid).

Another initiative that is worth mentioning focused on green industries, particularly in the Chris Hani District, between 2009 and 2016. Promotion of green industries in the district was supported by SMMEs who had an interest in manufacturing renewable energy technologies. This initiative was greatly supported by institutions such as the Eastern Cape Development Corporation, The Department of Economic Development, Environmental Affairs and Tourism (2015), The Department of Trade and Industry, local municipalities as well as the Industrial Development Corporation. The above-mentioned institutions all had an interest in supporting skills’ development and job creation in local communities through sustainable development initiatives (Zunga, 2010).

I am a former development practitioner, who worked in the public sector for nine years. My work focused on the development of local communities by enhancing the performance of SMMEs in the Eastern Cape Province, particularly focusing on the Alfred Nzo and Chris Hani Districts. In the rest of this section, I will discuss development projects in which I was personally engaged at the time, which I feel can give insight into some of the challenges of sustainability in the province.

Self-employment is recognized by the South African Government as a method of eradicating poverty and addressing unemployment (Department of Economic Development Environmental Affairs and Tourism, 2015). Viable Small Medium and Micro Enterprises (SMMEs) reflect the practicality of self-employment, especially in communities where unemployment and poverty are rife. Some of

the SMMEs Development Programmes that I was involved in were aligned to sustainable development initiatives. These initiatives were mostly implemented, through an integrated approach, with various stakeholders within the districts.

As a member of the Chris Hani SMME forum at the time, I represented the DEDEAT, under the Enterprise Development Section. The Enterprise Development Section supported the activities of the SMME forum. Some of the activities were greening initiatives. Greening programmes are activities that recognize and embrace the importance of being eco-friendly (Filho et al, 2015), for example, water conservation, tree planting, and the use of renewable energy (ibid). Most projects related to renewable energy (specifically solar water geysers) proved to be unsustainable in Komani due to quality and maintenance issues and failure to regularly monitor and evaluate them. The renewable energy projects, specifically the solar water heaters project in Ezibeleni Township in Komani, were not evaluated or monitored from their inception (Klishi et al, 2013). Sixty percent of the beneficiaries of the solar water heater project felt neglected and abandoned (ibid). Constant monitoring and evaluation of development projects is vital to ensure effectiveness and sustainability (Burkey,1993). Many users of these solar water geysers experienced leakages in pipes and spoilage of their household roofs. The beneficiaries of solar water geysers perceived that such difficulties resulted from the poor quality of these products, as they had to constantly replace damaged pipes and valves (Klishi et al, 2013).

The challenges to the viability of these sustainable development projects defeated support for sustainable development initiatives. This is because householders had to repair the damages that resulted from the inefficiency of implementation of these endeavours, and as a result their disposable income was reduced.

Drawing from my experience, I don't think the inability to achieve strong sustainability is limited to the above-mentioned factors. A lack of effective implementation of sustainable development initiatives may possibly result from an "ontological split between the primary power of the political community

(potential /of the people), and the delegation of the exercise of power through institutions, policies and representatives (potestas/those who command” (Lotz-Sisitka et al, 2020). This is why all stakeholders who are involved in implementing sustainable development initiatives must critically plan methods of implementing development policies, bearing in mind the main objective of the policy (Chambers, 1994).

Another example of a sustainable development venture that was implemented in the Chris Hani District while I was employed as a development practitioner, was aimed at supporting cooperatives. This initiative was part of the implementation of the Eastern Cape Provincial Co-operative Strategy. Cooperatives are a form of business enterprise that promote self-employment. These types of business enterprises are potential remedies to pressing sustainable development concerns such as poverty, unemployment and food security (Department of Economic Development Environmental Affairs and Tourism, 2015).

According to Jolingana (2012), between the period of 2011 to 2012, 6990 jobs were created by SMMEs (which include agricultural cooperatives) through the support of the Job Stimulus Fund. This fund is administered by the DEDEAT working closely with one of its public entities, the Eastern Cape Development Corporation (ECDC).

As development practitioners in the Chris Hani District during the period, we facilitated the establishment of an incubator programme for cooperatives in the agricultural sector. The incubation (known as the Incu-coop) lasted for a period of 5 years. It prepared and assisted members of the cooperatives to become commercial farmers. We created a conducive environment for these business enterprises to be sustainable and independent of the various funding institutions. Within a year of its establishment, the Incu-coop contributed to the Local Economic Development of the Chris Hani District (Jolingana, 2012). The existence of the Incu-coop in the district addressed the sustainable development

goals as it contributed to food security, job creation, poverty reduction, innovation and technology, industrialisation, and regional growth.

Post the incubation period, several cooperatives struggled to survive due to the following factors: Lack of information, inability to meet the demands for the product, lack of sufficient skills, lack of good governance, lack of commitment among members, conflict among members and illiteracy (Jolingana, 2012). These were not the only causes of the non-viability of the cooperatives after the incubation period. In order for cooperatives to survive they require continuous training and development to ensure their survival (Cooperative Act 14 of 2005, 2005). Provision was made for providing Education and Training programmes for cooperatives in the Eastern Cape Province. The above-mentioned education and training programmes were to be provided by the Institute for Cooperatives Development (IFCD) which was a partnership between the University of Fort Hare, Rhodes University and Walter Sisulu University (Jolingana, 2012). The IFCD's main objective was to fast-track capacity building and business development support to coops (Jolingana, 2012). Training and development for cooperatives was conducted by institutions such as the Small Enterprise Development Agency (ECDC) and the Department of Trade and Industry during the time that I worked in this field. The footprint of the IFCD was not visible in the Chris Hani District during my time of service as a development practitioner at this district. From my observation as a development practitioner at the time, no training sessions were conducted for cooperatives nor for SMMEs by the IFCD in the Chris Hani District.

## **1.7 Overview of the chapters**

### *Chapter 1*

This chapter introduced the study and presented the social-ecological context of the Eastern Cape Province. The context includes details of sustainability endeavours by various stakeholders who used an integrated approach. The foci of these sustainability endeavours included employment creation, life on land,

consumption and production patterns, poverty reduction as well as climate change action.

Chapter one also outlined the research problem as well as the objectives and research question. This chapter also explained the global imperative of addressing sustainable development goals, with a focus on gender challenges, renewable energy, clean water, and food security.

The chapter also outlined sustainability practices in higher education institutions, considering the following: Higher education institutions beyond Africa, higher education institutions in Africa and higher education institutions in Eastern Cape, South Africa. Sustainability practices in the Eastern Cape public sector are also described in this chapter.

## *Chapter 2*

In Chapter 2, I present the conceptual and theoretical frameworks of the study. The main concepts outlined here are sustainable development and higher education curriculum. Sustainable development is further explored by describing the significance of an inclusive approach of implementation. The inclusive approach in this study is grounded in systems theory.

The systems theory of Von Bertalanffy (1972) is applied in the study to emphasize the importance of integrating various institutional sub-systems (internal and external), while addressing sustainability concerns. Stakeholder relations and their role in addressing sustainability challenges are also discussed in this chapter. The role of stakeholder integration is further elaborated in the context of addressing existing socio-ecological concerns in South Africa.

Furthermore, in Chapter 2, the significance of higher education in implementing sustainable development initiatives is described. Emphasis is given to sustainable development, and specifically green skills in higher education curricula. The implementation of sustainable development initiatives in HEIs at an international, as well as a national level is described.



### *Chapter 3*

In this chapter, the research methodology is described, and the data generation and management methods are also explained. The data generation methods for the study were interviews, document analysis and observations. Data analysis through the analytical memos is described. The analytical memos are divided into two sections namely: Curriculum analysis; Reports and interviews. Issues related to ethics and trustworthiness are also discussed in this chapter.

### *Chapter 4*

This chapter presents emerging and possible sustainability foci in the FEITS curriculum. These foci are categorized according to the following sub-categories: climate change, environmental preservation, inequality, food security, water and sanitation, inclusive and sustainable economies, good health, well-being, and peace and justice. These sustainability concerns are reflected in the curricula of various qualifications of the Faculty of Economics and Information Technology Systems, as well as in the research and community engagement activities.

### *Chapter 5*

In chapter 5 I describe and evaluate the contextual realities, socio-ecological issues, the sustainability discourse and the sustainability practices of the FEITS. In this chapter systems theory is reflected on during the interpretation of the findings, as it explains how the various sub-systems are integrated in addressing the emerging sustainability concerns. I also describe and evaluate the alignment of green skills and green jobs to the curriculum of the faculty. The pedagogical practices and WIL are also discussed and evaluated. In the chapter participation in stakeholder platforms and projects, and course development needs are discussed. A summary of the finding recommendations is given, research limitations are explained, and future research ideas are described in chapter 5.

## **CHAPTER 2: CONCEPTUAL AND THEORETICAL REVIEW**

### **2.1 Introduction**

This chapter focuses on two concepts: Sustainable development and Higher education curriculum. Section 2.2 covers sustainable development, an inclusive approach of implementing sustainable development, systems theory, application of systems theory to the sustainability foci of the FEITS, the role of stakeholder inclusive implementation of sustainability initiative and gives examples of an integrated approach of addressing socio-ecological dynamics in the Eastern Cape Province. During the discussion of sustainable development as one of the main concepts of the study, affected internal and external sub-systems of the institution in question are considered. Consideration of these sub-systems is done by applying systems theory. A focus on sub-systems helps to highlight the different stakeholders involved in implementing sustainability measures (Chambers, 1994). Section 2.2 gives an example of the socio-ecological dynamics that exist in the Eastern Cape Province.

Section 2.3 covers the second main concept: higher education curriculum, and Section 2.4 examines the focus on the integration of green skills into higher education curriculum. This focus is used as an additional critical lens in the data description later in the thesis. Section 2.5 considers the significance of higher education in implementing sustainable development initiatives.

### **2.2. Sustainable development**

Landorf et al (2008) define sustainable development as development that focuses on meeting the needs of the current generation without compromising capacity of the future generations to meet their own needs. According to Cotton et al. (2007), the strongest interpretation of sustainable development reflects an emphasis on environment rather than on social or economic concerns and how managerial actions seek to protect vital environmental resources. Sustainable development is grounded in 17 goals which have replaced the Millennium Development Goals (MDGs), and serve as a guideline for the international

economy (Le Blanc, 2015). Therefore, all the definitions of sustainable development should integrate all important elements of development as represented by the 17 SDGs.

International anxieties are increasing regarding addressing the SDGs, and are exacerbated by issues relating to resource depletion, environmental pollution, unequal international exchange, ecological difficulties, and inter-class issues, just to mention a few (Landorf et al, 2008). These sustainability concerns are visible world-wide, as there is very little improvement in the general well-being of people and there is an accelerating increase in the gap between the rich and the poor. Media coverage sensitizes communities about sustainability concerns such as population growth, climate change and environmental depletion (ibid).

Disintegration across sectors (e.g. biophysical, economic and social) results from minimal understanding of trade-offs and interactions in these various sectors (ibid). According to the article *Environment and Sustainability Education Research as Policy Engagement Invigorating Politics as potential in South Africa*, attempts to address sustainable development are disintegrating (Lotz-Sisitka et al, 2020). This disintegration could also be resulting from an “ontological split between or within the primary power of the political community (potential/of the people)” and the transfer of authority in institutions, policies and delegates (Lotz-Sisitka et al, 2020, p.6).

### **2.2.1 Sustainability practices**

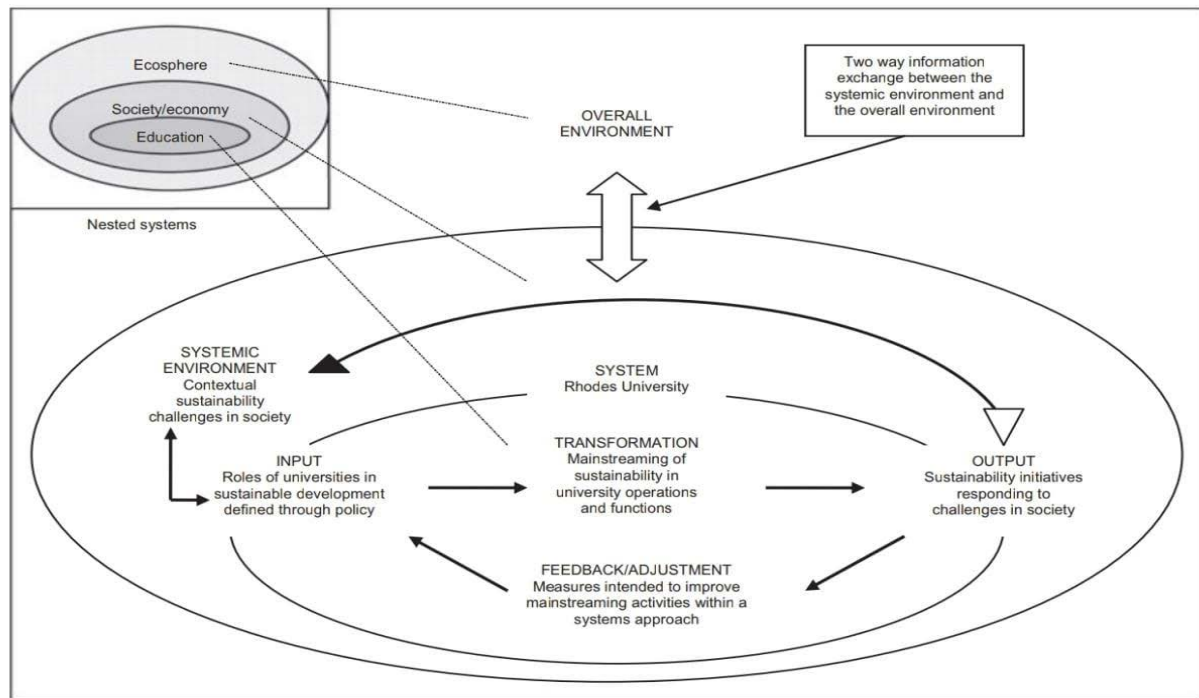
A sustainability practice can be any activity that is intended to address sustainable development. Maletič et al (2018) state that sustainability practices must be proactively integrated into an organisation’s strategy for the enhancement of its sustainability performance. Such measures should consider aspects of the environment, the economy as well as social issues and how they are addressed by various organizational systems (ibid). Von Bertalanffy (1972) best describes organizational systems as sub-systems whose activities should be integrated to achieve the overall organizational objectives (Chambers, 1994).

Sub-systems of an organisation can either be internal or external (Togo & Lotz-Sisitka, 2013).

Sustainability practices can be implemented in any organisation, incorporating both the internal (within the institution) and the external (local community) sub-systems (Togo & Lotz-Sisitka, 2013). There is an emphasis on integrating all systems of sustainable development (Department of Environmental Affairs, 2011). Integrating all relevant elements in a developmental process requires the participation of a variety of stakeholders while recognizing the mutual compatibility of all affected systems (ibid). The sub-systems of the FEITS are considered in response to the sustainability concerns of the faculty through the application of systems theory, and they are described in Section 2.2.3.

### **2.2.2 An inclusive approach to implementing sustainable development initiatives.**

Gupta and Vegelin (2016) argue that it is rare that sustainability changes are completely addressed, due to biases towards the economy at the cost of ecological and social issues. However, there are institutions that are achieving strong sustainability, as they are not focusing on one aspect of sustainability at the expense of another. An example of an institution that includes its sub-systems in implementing sustainable initiatives is Rhodes University (Togo & Lotz-Sisitka, 2013). Their approach is one that focuses on several disciplines. It is observable in the following departments of Rhodes University: Social Sciences/Humanities, Anthropology, Economics and History (ibid). This approach is not limited to the institution's internal environment. The inclusive approach adopted by Rhodes University is shown in figure 2.1.



*Figure 2.1 Rhodes University system in relation to its environment (Togo & Lotz-Sisitka, 2013).*

Figure 2.1 shows the interconnections between the sub-systems of the above-mentioned university. The community's sustainability challenges drive university inputs which are guided by university roles as defined in policy (Togo & Lotz-Sisitka, 2013). The university's response mechanism (transformation and feedback/adjustment) is grounded in systems thinking as it integrates units such as "the centre for Community Engagement, the Environmental Committee as well as other university academic departments and support departments" (Togo & Lotz-Sisitka, 2013. p.10). The outputs are the sustainability initiatives that respond to the society's sustainability changes. However, they cannot accommodate complex socio-ecological challenges alone. Therefore, it is necessary to enhance partnerships with various stakeholders to implement diverse approaches to solving these local sustainability challenges (ibid).

An inclusive approach for implementing the Sustainable Development Goals comprises of a number of sectors such as farming, the society, the environmental sector, the economic sector as well the education sector (Gupta & Vegelin, 2016).



*Figure 2.2 Cooperative Games for Sustainability of Global Feeding and Climate Change Vegan and Non-Vegan Food Firms agreement (Carfi & Donato, 2018).*

Figure 2.2 reflects a cooperative model that is applied during global food production that also addresses sustainability concerns (Carfi & Donato, 2018). The model considers the economic, environmental, and societal perspectives during the food production process (ibid). The integration of various aspects during the implementation of the cooperative model as reflected by Carfi and Donato reflects consideration of various sub-systems. Figure 2.1 reflects the internal sub-systems (university operations and functions) and external sub-systems (society) of an institution (Rhodes University), while Figure 2.2 reflects the relationship between sub-systems of the society and how they operate in an integrated way in addressing sustainability concerns. The sub-systems in Figures 2.1 and 2.2 are of different scales. The sub-systems in figure 2.1 reflect both the internal and external environment of the institution. The sub-systems in Figure 2.2 reflect the external environment of the institutions. All sub-systems of an institution make a substantial contribution to addressing sustainability concerns (Togo & Lotz-Sisitka, 2013). These sub-systems are referred to as wholes and wholeness, which emphasise the interdisciplinary nature of concepts

and models and how they complement each other in addressing challenges (Von Bertalanffy, 1972). The concept of wholes and wholeness is rooted in “systems thinking which is a discipline for seeing wholes” that reflects the interrelation between sub-systems (Senge, 1990, p.23).

The importance of integrated implementation of sustainable development endeavours is observable globally (United Nations, 2019). As reflected in Figure 2.2, all sub-systems of a community should be integrated in implementing sustainability practices. Such integration indicates that there should be no trade-offs between the economic, social, and ecological goals (Gupta & Vegelin, 2016). According to Gupta and Vegelin (2016), politicians are likely to make trade-offs in favour of the economy at the cost of social and ecological issues (ibid). The issue of sector trade-off became visible in the mid-2000s in South Africa (Lotz-Sisitka et al, 2020). The industrial sector has been overemphasized at the expense of the public good sectors (Department of Environmental Affairs, 2011). As a result, capacity in environmental management and other state sectors has weakened (Lotz-Sisitka et al, 2020). The mid-2000s was a period of a shift from the apartheid era to a new democracy in which the government tended to “focus on sector-based performance and performativity” (Lotz-Sisitka et al, 2020, p.25).

ESD were in place and ready for implementation, there was a policy failure between 2000s and 2010 regarding the implementation of ESD (Lotz-Sisitka et al, 2020). Failure to prioritize ESD is failure to prioritize the education sector as a whole. Hence Lotz-Sisitka et al (2020) highlights the focus on other sectors in terms of performance, reflecting a trade-off of other sectors at the cost of ESD.

As a former development practitioner, I can relate to the issue of sector-based performance. Trade-offs between sectors occasionally occurs due to the following: a lack of skills in various government departments; lack of motivation to engage in monitoring of sustainable development initiatives effectively; limitations due to shortages of relevant resources, and the disintegration of

relationships among various stakeholders. It is therefore vital to prioritize all relevant sectors and include them during the implementation of sustainable development initiatives.

Inclusivity refers to the process of aligning all disciplines with the SDGs, and collaboration to reduce inequality and promote inclusive development for everyone (Stafford-Smith et al, 2017). Countries such as Finland, Germany, China, the United States and South Africa are some of the many countries that have adopted the initiative of inclusive implementation of sustainable development initiatives (ibid). An important element of inclusivity is consultation with relevant stakeholders and including them during planning sessions that address sustainable development initiatives. Disciplines referred to by Stafford-Smith et al (2017) are also identifiable as sub-systems of an institution (Von Bertalanffy, 1972).

### **2.2.3 Systems theory**

Systems theory, which originated in the 1960s, is associated with the work of the biologist, Von Bertalanffy. Von Bertalanffy developed systems theory to respond to a scientific problem with regards to dealing with complexity (Von Bertalanffy, 1972). When Von Bertalanffy developed systems theory there was no such theory in physical chemistry; however, he discovered that there are “manifold relationships with chemical kinetics in its biological, theoretical, and technological aspects, and with the thermodynamics of irreversible processes” ( Von Bertalanffy, 1972, p.4). The main purpose of systems theory was to emphasize the importance of integrating sub-systems in addressing sustainability concerns (Barbara et al., 2009).

Systems theory is concerned with “wholes and wholeness”, which means all sub-systems forms part of a larger entity (Von Bertalanffy, 1972). It also emphasizes how sub-systems complement each other in addressing sustainability challenges that exist in the entire institution (ibid). Schaveling and Bryan (2018) state that



defining systems is tricky, due to different perceptions in different fields; however, a system has the following general attributes:

- A system consists of components.
- Different components of a system can also be classified as a whole system in a different analysis.
- All the elements of a system are interrelated.
- A system is bounded and identified by a boundary, which also differentiates it from its surrounding environment.
- Systems are hierarchical.

Focusing on the whole system can assist in identifying solutions that address as many problems as exist in the system (Schaveling and Bryan, 2018). This can be done by analysing individual components of the systems. Each component can be viewed as a different system and analysed separately. It is also critical to integrate various sub-systems for the purpose of addressing challenges, as this increases the possibility of success (Dube, 2012).

The application of systems theory has evolved over the years. It is now used in various disciplines such as computer science, sociology, political science, and geography (Togo, 2009). Buckley was the first to apply systems theory to sociology (ibid). However, Buckley argued that Von Bertalanffy's systems theory was inadequate to deal with systems that represent the sociocultural realm (Buckley, 1967). Therefore, Buckley termed his theory "sociocultural systems" to accommodate the complex, mechanical and organic environment of sociology (ibid).

In the 1990s and early 2000s, Von Bertalanffy applied systems theory to human activity (Togo, 2009). According to Von Bertalanffy (1997), the application of systems thinking to human activity influenced all affected sub-systems which have an effect on human activity. Hence the notion of wholes and wholeness, which emphasizes that human activities are wholes but also form part of a larger system (ibid). An example is the use of biofuel as an alternative source of energy,

which can have a negative effect on food security (Togo, 2009). Therefore, human activity systems are multi-dimensional. Togo (2009) gives examples which show that human activity can have a negative effect on people's own well-being and on support systems such as energy, and agriculture.

Another progression of systems theory is its application in the 21<sup>st</sup> century to the management of student conflict, which led to many unrests and violent protests in Nigerian Higher Education Institutions (Oyebade, 2001). To resolve these conflicts, experts were required, to establish long term solutions. In applying systems theory, the students acquired manual and intellectual skills, additional knowledge, and also enhanced their power of discernment and analysis (ibid).

#### **2.2.4 Application of systems theory to the sustainability concerns of the FEITS**

Systems theory has been adapted in this study in order to analyse curriculum implementation in the FEITS of WSU. The FEITS consists of various sub-systems which are: Academic and non-academic staff members, students, the local community, and other relevant stakeholders. HEIs cannot successfully address these challenges in isolation. An integrated approach, involving various sub-systems, is required to address sustainability concerns (Von Bertalanffy, 1972). It is therefore essential for both internal and external sub-systems of the faculty to adopt an integrated approach in identifying social ills and recommending methods to address them. Togo and Lotz-Sisitka (2013, p. 675) suggest that this integrated approach is necessary for “an evolutionary learning community”. According to Laszlo (2001), an evolutionary learning approach is an environment that is created so that people can learn the connective nature of our world, the ecological impact of our individual and collective choices and the joy of finding a profound way of contributing to a sustainable future. An evolutionary learning community requires all the stakeholders to make the required changes while addressing the identified social changes (ibid).

The interaction between stakeholders aims at improving the quality of life of people, while also creating an opportunity for future generations to be further capacitated and developed (Department of Economic Development Environmental Affairs and Tourism, 2015).

This study is not only searching for evidence of systems thinking in the FEITS qualifications; it also considers research and community engagement activities. The relationship of all the faculty's internal and external sub-systems is considered, with a focus on its sustainability.

The integration of various systems in implementing ESD reflects elements of transformative education (Dube, 2012). Transformative education inspires students to identify and explore questions, issues and problems for sustainability that are relevant to the context of their community (Tilbury and Wortman, 2006). Individuals may struggle to find the relationship between past, present, and future events (Karaarslan and Teksöz, 2020). They can, however, achieve personal mastery by cultivating self-discipline, meditating on sustainability practices, and viewing the world as an integrated system (Caldwell, 2012).

Transformative education is also required in ESD processes to transform people in society (Lotz-Sisitka et al, 2015). According to UNESCO (2006), transformative, cooperative, and critical learning are required in implementing ESD. Rieckmann (2018) states that transformative education develops the following competencies:

- Proactive competency
- Normative competency
- Strategic competency
- Collaborative competency
- Critical thinking
- Problem-solving competency
- Systems thinking competency.

The above-mentioned competencies require partnership and an integrated approach to addressing fundamental problems, which can be referred to as systems thinking (Senge,1990). Schaveling and Bryan (2018, p.11) describe systems thinking as a way of assisting a person to view a “system from a broad perspective that recognizes the overall” structures, patterns, and cycles in a system, instead of focusing only on a particular event. Senge (1990) echoes Schaveling & Bryan (2018), who say that systems thinking encourages interrelationship between sub-systems instead of operating in silos. Systems thinking is essential for ESD as it builds core competencies in educators (Booth-Sweeney, 2017).

According to Sleurs (2008), educators are vital agents who empower the new generation to create sustainable communities. Therefore, it is critical for them to possess key competencies (UNECE, 2011).

Systems thinking plays a major role in learning institutions; however, its “theoretical implications have not been seriously explored” (Bui & Baruch, 2010, p.146). Systems thinking is a theoretical framework rather than a practical theory; therefore, it cannot be enforced on individuals nor automatically bring about change. Systems thinking requires members of an organization to have a shared vision and an identical purpose and direction in addressing sustainability issues (ibid).

With reference to Senge’s study of systems thinking in an education organization (1990), Bui and Baruch (2010) believe that systems thinking cannot explain the organization’s practices and learning processes, which operate in a different way. The practices and learning processes of HEIs are explained by giving details of the modes of learning, assessment practices and various practices for conducting research and community engagement activities.

### **2.2.5 The role of stakeholders in inclusive implementation of sustainable development initiatives**

At the 2002 World Summit on Sustainable Development, a multi-stakeholder partnership initiative was announced (Bäckstrand, 2006). This partnership consisted of 300 public-private partnerships, supported by the United Nations (ibid). A Public-Private Partnership is recognized as an approach used to deliver goods and services to citizens, but can also promote sustainable development substantially (Khanom, 2010).

Effectively addressing sustainability concerns may require that stakeholders take a common stand. However, one must understand the uniqueness of the concerns that each community is experiencing (Khanom, 2010). Sustainability concerns are most often described as “wicked problems or nexus issues characterized by high levels of complexity, ambiguity, controversy and uncertainty” (Lotz-Sisitka et al, 2015). It therefore becomes vital for stakeholders to address sustainability concerns using a social-orientated approach. The latter is an approach that does not only focus on the institution in question, but also on the external environment (ibid). This is because unique sustainability concerns at any local sphere can be similar to those occurring in the global sphere (Lotz-Sisitka et al, 2016). However, addressing them requires participation and deliberation (ibid).

Bäckstrand (2006) argues that multi-stakeholder partnerships promote global unity. However, multi-stakeholder partnerships can also enhance global bureaucrats’ agendas and their ability to exploit power in world politics (ibid). Global multi-stakeholder partnerships have reflected deficiencies in the area of legitimacy in policy implementation, as well as effectiveness and accountability in various structures (ibid). Lotz-Sisitka et al (2020) express concerns about the national planning and policy implementation in South Africa that resulted in policy inconsistency. Such policy failure occurred due to over-ambition, lack of

internal policy framing and inadequate skills at a national level during implementation of ESE policies (ibid).

An inter-sectoral approach of addressing sustainability challenges requires stakeholder interaction. This starts from the planning process of various institutions, so as to integrate sustainability practices in their respective activities. Stafford-Smith et al (2017) state that a multi-stakeholder partnership increases the likelihood of effective implementation of sustainability practices, as these stakeholders will be focused on a set of goals that will provide a legitimate common standard.

#### **2.2.6 Socio-ecological dynamics: Examples of stakeholder integrated approaches for addressing sustainable development concerns**

One of the main foci of this study is sustainable development. Biodiversity is essential for sustainable development and human life (Convention on Biological Diversity, 2018, p.1). Biodiversity is key for the “provision of food, fibre and water; it mitigates and provides resilience to climate change”. It also strengthens human health and supports the provision of jobs in agriculture, fisheries, forestry, and other sectors (ibid). Therefore, this section uses biodiversity as an example for understanding stakeholder engagement in sustainable development.

Participation in, and deliberation on, socio-ecological challenges is observable in biodiversity projects all over South Africa. One of the biggest challenges that biodiversity is facing is the issue of alien plant invasion. Alien plants are a social-ecological issue that affect the general ecosystem. It is vital to adopt an integrated approach when addressing this issue (WESSA, 2011). Alien plants are one the biggest threats to biodiversity in South Africa (Department of Environmental Affairs, 2011). Several institutions are working together closely to address the issue of alien plant invasion, while also looking for positive opportunities to address the problem (ibid).

The first occurrence of alien species in South Africa dates back to as early as 1685, mainly in the Western Cape, with the alien introduced being the *Acacia*

pycnantha (also known as the Blue passion), which is believed to have been obtained from Britain and its Colonies (Matthys, 2019) . Many other alien species exist in South Africa because of abandoned plantations, such as the pine plantations in the Cape (ibid). At first, abandoned pine plantations were not recognized as a priority area that needed attention, but recently, it has been recognised that the negative effects of severe drought and wildfires are intensified by abandoned alien plantations (Andersson et al., 2018). Alien clearing endeavours are expensive; control measures are currently costing the South African Government approximately R38m per annum (ibid).

Attempts to protect the natural ecosystem are being made in several South African Provinces. One of the municipalities engaged in biodiversity management is the Chris Hani District Municipality in the Eastern Cape. The Chris Hani District Municipality has developed a strategy for biodiversity management that encourages an integrated approach (Chris Hani District Municipality, 2015). This approach is aimed at enhancing implementation of sustainable development programmes of various institutions that are servicing the Chris Hani District at large (ibid). The Integrated Development Plan (IDP) of the Chris Hani District Municipality echoes the importance of integration in addressing alien plant eradication so as to safeguard the natural resources that can be beneficial to all citizens of South Africa, improving their livelihoods (Chris Hani District Municipality, 2019). According to the Chris Hani District Municipality (2015), the integrated approach to addressing the invasion of the natural vegetation by alien plants has brought about positive benefits for local communities. These benefits are in a form of using the extracted alien plants to manufacture useful products such as charcoal from the black wattle (also known as *Idywabasi*<sup>1</sup>) and pine oil (ibid).

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<sup>1</sup> Idywabasi is a Xhosa name for the Black wattle that originates from building fire (Reynold, 2021). Ecologically, Idywabasi is associated with water and fire as they both stimulate germination of its germ (ibid).

These benefits become possible through the formation of groups to work on alien plant eradication, organized and paid by the Department of Public Works, through their Extended Public Works Programme (EPWP) (The Department of Environmental Affairs, 2011). While coordinating these groups, the Department of Public Works collaborates closely with various stakeholders, such as the DEDEAT and the Chris Hani District Municipality, through their Local Economic Development Sections (*ibid*).

The DEDEAT assists individuals working on the alien plant eradication initiatives to register cooperatives (Department of Environmental Affairs, 2016). However, cooperatives have been struggling to survive as a form of a business. The survival rate of cooperatives in the Eastern Cape is discussed in detail in Section 1.6.1.

For cooperatives to succeed, members require intensive training, which can be acquired through educational programmes that are close to the area of operation. For example, the green jobs associated with alien plant eradication require relevant skills such as those developed by agricultural extension officers and resource economists, who specialize in biodiversity issues, social scientists who specialize in environmental issues as well as entrepreneurs (Department of Environmental Affairs, 2011). All of these skills can be acquired through programmes in a few academic institutions in the Eastern Cape Province, but none are available in HEIs within the Chris Hani District. This is alarming considering the urgent need to sustain the ecological restoration projects currently operating in this district. Individuals who participate in these projects require relevant skills to become self-reliant and possibly pursue self-employment.

The Eastern Cape Province is also managing other socio-ecological challenges such as clean water and sanitation and waste management. This is now discussed as a second example of a stakeholder integrated approach for addressing sustainable development concerns.



The Province is experiencing a backlog in the provision of sanitation services (Chris Hani District Municipality, 2019). According to the Eastern Cape office of the Premier (2007), more than one third of households in areas such as Engcobo, Lady Frere and Cofimvaba have no household sanitation. “It can be seen that in 2007 the number of households without any hygienic toilets in Chris Hani District Municipality was 116 000, this decreased annually at a rate of -5.53% to 65 500 in 2017” (Chris Hani District Municipality, 2019, p.34).

Water and sanitation problems are evident in several local communities in the Chris Hani District Municipality. The residents of Newville township under the Enoch Mgijima Local Municipality continue to experience a sewage nightmare, despite numerous complaints having been lodged with the Chris Hani District Municipality (CHDM), which is responsible for water and sanitation services in the area (The Representative, 2020).



*Figure 2.3 Sewage nightmare at Enoch Mgijima Local Municipality.*

Figure 2.3 depicts the situation in Newvale township, where sewage blockages are caused by blockages in the drainage system, often caused by floods and illegal dumping (ibid). The Chris Hani District Municipality acknowledged in its 2019-2020 IDP review, that indeed there is a backlog in the provision of water

and sanitation services (Chris Hani District Municipality, 2019). The CHDM has employed a service provider to supplement the work of their staff members and also monitor municipal activities at local municipality level (ibid).

Extreme poverty often leads to numerous environmental issues, one of them being overcrowding, such as is evident in a number of informal dwellings within the CHDM (Chris Hani District Municipality, 2019). Other issues include inadequate water and sanitation facilities, as seen in several informal settlements. Dwellers in informal settlements might all be seeking job opportunities in prevailing industrialization activities in their local municipalities. Ideally, acquiring a job should improve people's livelihoods. However, this is not always the case; neo-liberal states have previously embarked in unfair practices such as: reducing worker subsidies, laying off workers and withdrawing worker benefits (Haque, 1999). The actions of mass-industrialization and mass-urbanisation caused by neo-liberal policies have done nothing but worsen sustainability challenges such as poverty, inequality, and social welfare difficulties (ibid).

According to Poti (2019), the Eastern Cape Department of Environmental Affairs budgeted R17,9 million for environmental projects in the 2019 financial year. These environmental projects were responding to existing waste management challenges in the Eastern Cape Province (ibid). Residents of almost every town in the province have become used to illegal dumping and non-management of waste. Seemingly, existing landfill-sites no longer serve their purpose. Afriforum (2020) conducted 135 landfill site audits nationwide in 2002, of which six were in the Eastern Cape (ibid). Their findings indicate that most landfill sites in the Eastern Cape are in a shocking state.

Abandoning waste and the non-management of landfill sites imposes health challenges on surrounding communities. In the rural town of Alice, health and environmental hazards that resulted from uncollected waste have been observed (Mamutse et al, 2014). The Eastern Cape Provincial Government has sponsored

an urban renewal project in Alice in order to beautify the town and intervene in existing waste management challenges (Mamutse et al, 2014). Waste management projects do not only clean up the environment, they also help to create jobs opportunities (Poti, 2019).

Climate change that results from negative externalities may have a negative impact on biodiversity, human welfare, and the earth at large (Black et al, 2011). Black et al (2011) describe negative externalities as actions that impose costs on another person, who does not get compensated. Positive externalities, on the other hand, are benefits obtained from another party free of charge. An example of a negative externality is spill-out effects resulting from production or consumption. Socio-ecological issues such as water and sanitation provision, and waste management may all be affected by negative consumption externalities. Parties who are affected by negative externalities are often not compensated, and as a result they carry a huge burden (ibid). Sections 4.2.1, 4.2.2 and 4.3.2 of this study describe how externalities are used in the faculty's curriculum to equip students in relation to developmental aspects the society.

Negative externalities often result in societal inequalities (Black et al, 2011). Inequality is hard to define as it is a “slippery and complex subject” (Mount, 2009, p.3). According to Black et al (2011), inequality is a lack of equality in relation to income, opportunities, and distribution of resources. According to Mount (2009), there are five types of inequality namely:

- Political inequality
- Inequality of access to opportunities
- Inequality as a result of unequal treatment
- Inequality of access to income and wealth, and
- Inequality because of an inability to acquire membership of society

Generally, inequality has a negative effect on sustainable development (Castells-Quintana et al, 2019). Therefore, it is important for government to prioritize strategies for addressing existing inequalities in societies. Black et al (2011)

suggest that the government can address inequality by means of applying Bergson's Theory. The latter focuses on implementing policies that are aimed at:

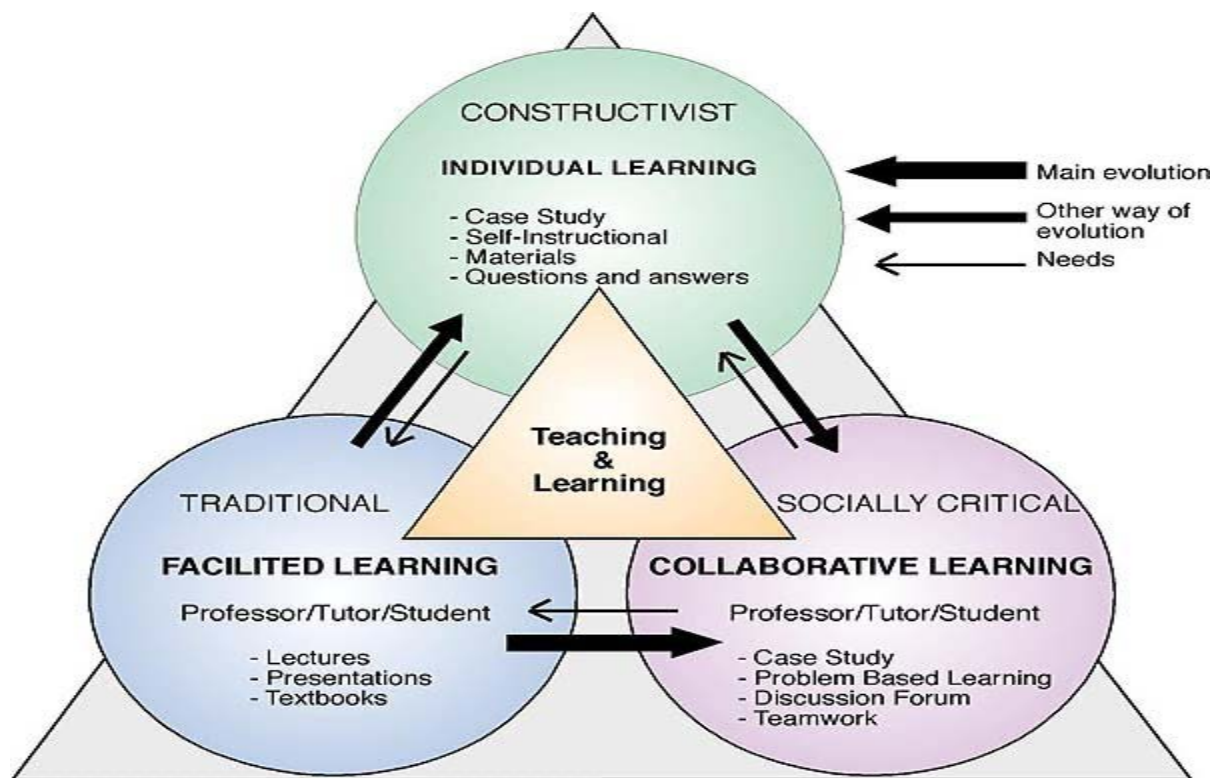
- Distributing income from the rich to the poor through government taxation
- Provision of poverty relief programmes, such as provision of basic services
- Provision of security services for both the rich and the poor
- Promotion of health services for both the rich and the poor

In addition to government sponsored projects that address socio-ecological factors, it is important to seek methods of integrating them into the education curriculum.

### **2.3 Higher education curriculum**

Curriculum can be defined in various ways, subject to various ideologies and philosophies, and notions thereof may be shifted, based on the context of teaching and learning (Department of Higher Education and Training, 2018). On an operational level, a curriculum is viewed as a guiding document that gives direction to the content, the pedagogy, as well as the assessment of learning (ibid). In this study I consider three types of pedagogies, namely: the traditional approach; a research-oriented approach and Work Integrated Learning (WIL).

A traditional approach to teaching and learning is an approach that is classroom-based (Communications, 2006). A traditional approach consists of an instructor that facilitates and regulates the flow of information and knowledge, while expecting the learner to explain their understanding through an assessment (ibid). Bjorke (2016) describes a traditional approach as facilitated learning as reflected in Figure 2.3. Communications (2006) argues that a traditional approach is also prevalent in e-learning, that makes use of presentations, lectures, and textbooks.



*Figure 2.4 Curriculum response methods (Bjorke, 2016)*

Cornbelet (2021) states that curriculum is often isolated from its original context. The isolation of curriculum from its sociocultural context is a form of operational decontextualising (ibid). This reduces it to a framework which defeats the objective of learning for a purpose. Curriculum should not be perceived as a tangible product, but rather as “a day-to-day interaction of students, teachers, knowledge and context” (Cornbelet, 2021, p. 89).

This study does not only focus on the operational level of the university but also on its external environment. The students interact with the external environment of the university through WIL. The latter is a practice that combines a traditional approach to learning with an undergraduate student’s experience of the world-of-work, with the aim of preparing them for entry to the labour force (Jackson, 2015). Components of WIL include internship programmes, fieldwork, job shadowing and cooperative education and service learning (Von Treuer et al, 2010). According to Clinton and Thomas (2011) service learning is a component

of WIL that grants students an opportunity to enhance their professional skills by contributing to an organised service activity which benefits a community. WIL has become an important component in higher education that attracts significant funding for further expansion (ibid). Bitzer and Botha (2010) argue that a higher education curriculum is an academic plan or roadmap of the students' course-work which comprises of assessments, research, community engagement, practical work, ethical considerations and improved literacy. My research project is an analysis of the curriculum of the Faculty of Economics and Information Technology Systems for current and possible sustainability foci, concerning all the sub-systems (faculty, students, community, and affected stakeholders). When HEIs align their curriculum with the situation in their surrounding communities, they draw attention to dominant social ills such as poverty, social injustice and health issues (Palincsar, 1998). It is therefore vital for HEIs to consult local communities during the development of their curriculum.

## **2.4 Integration of green skills into the higher education curriculum**

Green skills are described as skills that contribute towards sustainability (Jenkin et al, 2017, p.3). These skills comprise of “technical skills, knowledge, values and attitudes” that are required in the labour force to contribute towards sustainable social, economic, and environmental outcomes of the society (Council of Australian Government, 2009, p.2). Green skills can be linked to qualifications in HEIs in order to prepare potential graduates for the working environment. Brajesh et al (2018) believes that the integration of green skills into various qualifications will enable labour mobility across sectors.

According to Jenkin et al, (2017, p.5), there are very few skills development initiatives “outside of short courses in universities” that focus on green skills or the management of current environmental challenges. OneWorld Sustainable Investment (2017) states that several universities in South Africa provide academic qualifications with a green curriculum. These academic qualifications

are in the form of undergraduate and postgraduate courses. These universities include University of Cape Town, University of Witwatersrand, and Free State University (ibid).

South African HEIs such as the University of Cape Town, Rhodes University, Wits University, and the University of Western Cape play a significant role in green skills development. The above-mentioned universities were key role players in the Green Skills programme that was implemented between 2015-2018 (Jenkin et al, 2017, p.3). The objectives of the Green Skills Programme were to “develop the capacity for green skills development” and emphasize the increase in the demand for green work (ibid).

Borel-Saladin and Turok (2013) state that green skills are urgent in enterprise development and jobs related to the water industry. Jenkin et al (2017) state that green skills are essential across the main economic sectors such as manufacturing, infrastructure, and agriculture. Green skills are required across the South African workforce and so the prevalence of green skills development in different aspects of university curriculum, research and community engagement activities is an important consideration in a study such as this one.

## **2.5 The significance of higher education in implementing sustainable development initiatives.**

Grobbelaar (2005) states that none of the 17 Sustainable Development Goals can be achieved without the contribution of higher education and research. This notion is echoed by Chibamba and Sakala (2015) regarding their project that focused on integrating ESD concepts into the Curriculum of the University of Zambia. Lotz-Sisitka et al (2015) state that graduates from institutions of learning have a great ability to use their acquired skills in a manner that considers social, economic, and environmental drawbacks. Grobbelaar (2005) agrees with Lotz-Sisitka et al (2015) that graduates who are trained in education for sustainable development are capable of choosing the best actions in resource utilization that consider current and future generations.

HEIs can support the students' independent thinking through creation of possibilities, "not define or prescribe the future for students: sustainability is best seen as only one of many stepping stones" (Cotton et al, 2007, p. 581).

The NMU student Mobilization Change Project 2011/12) is one of the many sustainable development initiatives that reflects the independence of students during the implementation of sustainable development initiatives. The spinoffs of the NMU student Mobilization Change Project are not limited to the university; they also have a positive impact in the local community (ibid). According to Grobbelaar (2005), universities are a critical asset for any region as they play an essential role in developing their local communities. An example of a South African university that has been an essential participant in its region's development is the Nelson Mandela University. Lotz-Sisitka et al (2015) state that the NMU George Campus Change project provided a conducive environment for students to initiate projects in partnership with campus management, while providing a collective student voice on sustainability issues within the campus and the local community. This collaboration reflects the importance of an integrated approach among sub-systems of an institution in addressing certain sustainability concerns, as emphasized by systems theory. It is evident from the examples of the above-mentioned universities that HEIs play a significant role in addressing local sustainability concerns. Grobbelaar (2005) echoes that universities have a positive effect on the achievement of regional development initiatives through the mobilization of their resources.

## **2.6 Concluding comments.**

This chapter has described the significance of an integrated approach when implementing sustainable development endeavours. The significance of stakeholder integration when addressing sustainable development challenges is described, including higher education institutions. Socio-ecological dynamics such as alien vegetation and waste management are also described in this chapter.



In this chapter, systems theory, and its application in the FEITS is explained. Higher education curriculum and its alignment to green skills is explained. The chapter also reflects on the significance of implementing sustainable development initiatives.

## **CHAPTER 3: RESEARCH METHODOLOGY**

### **3.1 Introduction**

In this chapter, the research design is articulated and an overview of how the research was conducted is given. In this study, the followings methods were used to generate data: individual semi-structured interviews, observations, and document analysis. The chapter further discusses the trustworthiness of the data and explains the triangulation process in dealing with issues of validity. The chapter also describes the data generation tools and the data analysis and interpretation.

### **3.2 Research Methodology**

The methodology of this study was inspired by Setati (2005), who described social research as research that considers people's feelings and expressions. Through my use of a qualitative research methodology, participants were enabled to share with me their experiential knowledge. This means they expressed what they believe, what they have an idea of and what they have experienced (Matthews & Ross, 2010).

#### **3.2.1 The Interpretivist research orientation of the study.**

To acquire information on the sustainability focus of the Faculty of Economics and Information and Technology Systems of Walter Sisulu University, an interpretive research paradigm was used. The intention was to obtain intense interpretation of the participants' world (Lewis & Ritchie, 2003). According to McCann et al (2012), real world and interpretivist studies are inseparable and result from the need to observe sense-making activities as a process of acquiring knowledge in a social environment. The researcher is acquainted with the social environment of interest while, in addition, the participants give their personal views on this social context. Barbara et al (2009) emphasize the significance of obtaining in-depth information rather than generalizing. Interacting with the

participants has expanded my understanding of the sustainability focus of the faculty.

### **3.2.2 A Case study approach**

A case study approach enables the researcher to establish and present a detailed view of a particular situation, event or entity (Rule & John, 2011). Selecting a case study approach for this research project assisted me to acquire in-depth understanding of the sustainability focus of the curriculum of the Faculty of Economics and Information Technology Systems. Cohen et al (2000) state that a case study approach is suitable for portraying the reality of a particular situation and acquiring a rich description of the participants' experiences, thoughts, and feelings of the situation of interest.

I am a lecturer at the faculty in question, and I am aware of some of the activities within it. However, this research enabled me to look with more depth at specific scenarios in terms of qualifications, modules, and committees. Analysing specific sub-systems of the faculty enabled me to obtain an understanding of various emerging sustainability concerns. The aim of conducting a case study is not to prove anything, but rather to learn something (Flyvbjerg 2006).

This study is an intrinsic case study. An intrinsic case study allows the researcher to describe the scenario thoroughly (Hamilton & Corbett-Whittier, 2014). This description is done by focusing fully on a department or institution that makes up the case (ibid). The focus of an intrinsic case study is not only on the case (for example the faculty or institution), but also on the activities of that case (Durepos et al, 2020). An intrinsic case study is different from other forms of case study. For example, in a reflective case study the researcher engages with "the topic and researcher's feelings, issues and reflections on experiences and interactions" (Hamilton and Corbett-Whittier, 2014, p.15). A longitudinal case study is expanded to a longer period in order to give the researcher an opportunity to acquire in-depth understanding of the changes that may occur (ibid).

This intrinsic case study focuses on all the activities of the FEITS during the 2019 academic year. These activities include teaching and learning, research, and community engagement activities.

### **3.3 Research site and participants**

Walter Sisulu University is situated in the Eastern Cape Province, within the Republic of South Africa. The university was named after the late Walter Max Ulyate Sisulu who is an icon of the South African Struggle. WSU was established in 2005 through the amalgamation of the University of Transkei, Border Technikon, and Eastern Cape Technikon. There are currently 30 000 students enrolled in the 186 academic programmes that are offered at WSU.

The university has four campuses, namely: Buffalo City Campus, Butterworth Campus, Komani Campus and Mthatha Campus. The research site is the Komani Campus, which has two delivery sites. The first site is situated at Whittlesea, and it is known as Masibulele Delivery Site. Whittlesea is about 40km from Komani where the second delivery site is situated. The Delivery Site situated in Komani is known as the Grey Street site.

The research focus is on the Faculty of Economics and Information Technology Systems, situated at the Grey Street Site. The faculty consists of three departments, namely: the Department of Management Studies, the Department of Economics and Finance, and the Department of Information Technology Systems. The faculty offers twelve academic qualifications, of which nine are undergraduate qualifications and three are postgraduate qualifications. During the 2021 academic year a total of 2122 students were registered for studies in the FEITS. A total of 1904 students are undergraduate students and 218 are postgraduate students.

Postgraduate students are involved in research activities, and they receive continued support from the faculty's research committee. The FEITS has both a research committee and a community engagement committee. Each of these committees is led by a chairperson who focuses only on the faculty. The

functions of the faculty's research committee are aligned with those of the institutional research directorate. The research committee facilitates financial and non-financial support for students, academic staff, and non-academic staff within the faculty. The community engagement committee supports the faculty's teaching and learning activities as well as research activities that are related to local and global dimension of community engagement. The focus of this study is not only on teaching and learning, but is also extended to the faculty's research and community engagement activities.

A purposive sample was selected from the faculty and eight academic staff were invited to participate in the study. These included six faculty lecturers whose teaching responsibilities are listed below in Table 3.1.

Lecturer	Degree/Diploma	Course/ Module
Lecturer 1	Bachelor of Commerce-Honours	Supply chain management
Lecturer 2	Advanced Diploma-Human Resource Management	Organizational Behaviour
Lecturer 3	Bachelor of Commerce	Development economics
Lecturer 4	Bachelor of Commerce	Public economics
Lecturer 5	Diploma Human Resource Management	Labour relations
Lecturer 6	Diploma - Accounting	Entrepreneurship skills

*Table 3.1 Qualifications for generating data.*

The other two participants were the chairpersons of the research and community engagement committees. Document analysis was conducted on the reports of the 2019 Research and Community Engagement Committees. Furthermore, analysis was conducted on six course outlines. Three on-line lectures from three of these courses were observed. Interviews were conducted with all participants besides Lecturer 2 above, thus seven interviews were conducted in total.

### **3.4 Data generation**

As mentioned above, the data generation methods used in this study were semi-structured interviews, data analysis and observations. The purpose of using these methods was to obtain thick and rich data which reflected clearly the status quo of the issue of interest (Norris, 1997). The use of various data generation methods through triangulation gave me an opportunity to obtain a detailed description of the issue of interest (Bowen, 2009).

The data was generated through interviewing lecturers from the faculty as well as chairpersons of the Research and Community Engagement Committees. I also conducted document analysis of qualification learner guides, research committee reports and community engagement reports. I also conducted observations of online teaching and learning. I only observed three lectures, as online learning is a relatively new mode of conducting classes in the faculty, and therefore participants were not comfortable about being observed. Utilization of numerous data generation methods allowed the researcher to clearly reflect the status quo of the issue of interest (Norris, 1997).

All the data generation tools that were used in this study were directed by Togo's USAT Tool of curriculum analysis (Togo, 2009). I adopted Togo's adaptation of Von Bertalanffy's systems theory (Togo, 2009) to analyse how the Faculty of Economics and Information Technology Systems, through its curriculum implementation, is acting as an agent in addressing sustainability concerns that affect nearby communities.

Togo (2009) used systems theory in a quantitative study of mainstreaming environment and sustainability in universities, particularly focusing on Rhodes University. My adaptation of systems theory also focused on a university; however, the focus was only on one faculty, and I used a qualitative research method to analyse one faculty in depth, rather than a quantitative method to obtain broad university-wide insights.

### **3.4.1 Interview process**

Seven participants from the Faculty of Economics and Information Technology System were interviewed. The participants included the chairpersons of the Research and Community Engagement Committees, four lecturers on undergraduate qualifications and one lecturer on a postgraduate qualification (five lecturers in total). Due to the Covid-19 outbreak, no interviews were conducted in-person. Two of the interviews were conducted via zoom live meetings and five were conducted telephonically.

The participants were interviewed using an interview schedule that consisted of open-ended questions. The use of open-ended interviews allows the informants to express themselves spontaneously in their own voice (Glaser & Grit, 2013). Interviews add the human element of the voices of multiple subjects, while also allowing the researcher to cross-reference multiple opinions from various participants (Fontana & Frey, 1991).

The research used three interview schedules for accessing different sub-systems. The first interview schedule sought to identify sustainability foci reflected in the course outlines, content, teaching approach and assessment practices of various qualifications (see Appendix A). The second interview schedule was used to interview the chairperson of the community engagement committee. It sought to identify practices and possibilities for the faculty to contribute towards addressing local sustainability challenges through curriculum-linked community engagement initiatives (see Appendix B). The third interview schedule was used to interview the chairperson of the research committee. This helped identify focus areas and research methodologies in the faculty's research projects that respond, or potentially could respond, to local sustainability concerns (see Appendix C).

Choosing semi-structured interviews as a tool to generate data from the sample drawn from the faculty helped me to have intense conversations with the participants, while discovering their opinions about sustainability and how this

is aligned with the content of their individual courses. Semi-structured interviews frequently give in-depth information when compared to other data generation methods (Gibson, 1998). During the interview process, I adopted the view of Glaser and Grit (2013), who maintain that a characteristic of a good interview is that the informant is encouraged to speak more than the interviewer.

Virtual and telephone interviews allow participants to express themselves spontaneously. Mohanoe (2013, p. 61) states that “face to face interviews might be intimidating” to participants. Examples of notes with lecturer A are included as Appendix D; notes of discussions with the chairperson of the Community Engagement Committee are included as Appendix E and notes with the chairperson of the Research Committee are included as Appendix F. Appendix G and F are transcriptions of interviews with lecturers A and B respectively.

### **3.4.2 Document Analysis**

The first type of document analysed was course outlines. These included four course outlines from undergraduate qualifications, namely: Entrepreneurship skills, Development Economics, Public Economics, and Industrial Relations 2, and two postgraduate course outlines for the following courses: Advanced Organizational Behaviour and Supply Chain Management (SCM). The second type of document that was analysed was reports from the Research and the Community Engagement Committees. The community engagement report analysed was the 2019 consolidated report (including all 2019 quarters) and the research committee report consisted of four 2019 quarterly reports.

### **3.4.3 Observations**

I observed online lessons (due to COVID-19 restrictions) of the lecturers with whom I conducted semi-structured interviews. Although I conducted five interviews, I was only able to observe three online lectures. This was because I was not granted permission by the other two lecturers to access their online classes on the institutional Blackboard platform (also known as Wiseup). Blackboard is an online teaching and learning platform that allows the lecturer



and the students to interact through Blackboard Collaborate and discussion forums. On Blackboard Collaborate, live online lessons can be conducted and recorded. Recorded online lessons are usually made available to students and users of every module that appears on blackboard. I observed online discussion forums, but there were no live nor recorded lessons for these three modules. An observation schedule was developed to capture data while observing the discussion forum (see Appendix I). Observations allowed me to capture elements of the faculty's sustainability focus that were not reflected in the course outlines, nor during the interviews, as they were discussed by the students during the lecture (see Appendix J, which includes an example of notes from one of these observations). Appendix K is a sample of observed teaching and learning on Blackboard. Appendix L was used to capture a discussion forum for Public Economics. Hennings (2004) argues that the purpose of using observations is to debunk the myth that interviews tell it all, as the researcher will be provided with assorted data. This will enable interview data to be validated.

### 3.5. Data Management

The data that was generated from the above methods was organized and archived manually and electronically. The following table is an example of how the data was labelled:

Interview with lecturers	Interview with committee chairpersons	Course outlines	Committee reports	Observation of lectures
LI.1, LI.2, LI.3, LI.4, LI.5	INT.RCC, INT.CEC	CO.1, CO.2, CO.3, CO.4, CO.5, CO.6	RCR.1, RCR.2, RCR.3, RCR.4 CER	OB.1, OB.2, OB.3

*Table 3.2 Labels for data generation tools.*

The data that was generated from the research project was organized according to the following labels: 'LI' represents various lecturer interviews, 'INT.RCC' and 'INT.CEC' represent interviews with the chairperson of the Research Committee

and Community Engagement Committee, respectively. 'CO' represents course outlines that were used in document analysis. 'RCR' represents research committee reports, while 'CER' represents the 2019 consolidated report of the community engagement committee. Finally, 'OB' represents observations of lectures.

### **3.6 Data analysis and interpretation**

A qualitative analysis was used to scrutinize and interpret the generated data. Organising the data systematically and coherently helps avoid the risk of miscoding and mislabelling (Wolfe, 1992). Each sub-system was scrutinized for emerging sustainability concerns, by subjecting it to the main research question as well as the sub-research questions. The sequence of data analysis is described below.

The first analytic phase focused on analysing data from the semi-structured interviews with the five lecturers, observations of the three lectures and the analysis of six lecturers' course outlines. This phase focused on examining how sustainability was reflected in the course outlines, content, teaching approach and assessment practices of various qualifications. The data was analysed in Analytical Memo 1 (See Appendix M: Analytical memo 1: Curriculum implementation). Memos help the researcher to think about the relationships within the data and make ideas observable and retrievable (Maxwell, 2009).

The second analytical phase focused on data generated from the interview conducted with the chairperson of the Community Engagement Committee, as well as analysing the 2019 consolidated community engagement report. The generated data assisted me to identify practices which contribute towards addressing local sustainability challenges through curriculum-linked community engagement initiatives and possibilities for the faculty to do this. The data analysed in this phase is organised in Analytical Memo 2. (See Appendix N: Analytical memo 2: Community engagement and research activities.)

The third and last phase of the analysis worked with data generated by interviewing the chairpersons of the Research committee as well as by analysing the 2019 research committee quarterly reports. The analysis helped me to identify focus areas and research methodologies in the faculty's research projects that respond or could potentially respond to local sustainability concerns. The data generated in this phase is also analysed in Analytical Memo 2. (See Appendix N: Community engagement and research activities.)

### **3.7 Data Validity**

In this study, I researched the work of my co-workers and colleagues which required reflectivity regarding bias, personal feelings, and interpretation of the respondents' contribution to the study. Without reflectivity there is a possibility of compromising the legitimacy of the data. The researcher seeks to provide credible information while reducing potential biases that can occur in the study (Bowen, 2009), through triangulation. Norris (1997) states that the above-mentioned concerns reflect an interest in interpretive validity which can be addressed by utilizing several data generation methods.

A combination of the data generated from the three data generation methods assisted me with the process of validating the data through triangulation. The memo also assisted with the triangulation process by comparing data with respect to various categories and sub-categories.

### **3.8 Ethical considerations**

I acquired consent to conduct the study at Walter Sisulu University, my place of work. The first consent that I acquired was gatekeeper permission from the Dean of the FEITS, and secondly, I acquired permission to conduct research from the chairperson of the Faculty's Higher Education Committee. Attached is Appendix O: Consent to Conduct Research from the Dean of the faculty). Gaining accesses to a learning institution, the classroom as well as getting the lecturers involved is an ethical question that all researchers have to address (Setati, 2005).

Transparency is another important ethical question that includes transparency with respect to the following questions: To whom is the researcher responsible? To whom is the researcher accountable? and what is the researcher accountable for? (Setati, 2005).

The Dean of the Faculty is able to respond to these questions as he granted a consent letter containing the details of the research project (See Appendix O). Access is not just a matter of getting into the right localities to speak to people; “it usually makes you confront the nuances of power” (Skeggs, 1992). The researcher dealt with the nuances of power by obtaining permission from the Dean and the Chairperson of the higher degrees committee to conduct research in the FEITS.

Having approached the highest designation in the Faculty, I then acquired consent to conduct research with the eight participants from the Faculty of Economics and Information Technology Systems. Obtaining consent from the lecturers in the faculty confirms that I am abiding by the Rhodes University Research Ethical Standards (See an example of consent form: Appendix P).

Receiving consent from the participants was based on the grounds of anonymity. Participants are anonymous so as to avoid any humiliation that may result from the research outcomes (Walford, 2005). The university as well as the faculty in question are not anonymous, as I intend on embarking on future work pertaining to my findings about the sustainability focus of the faculty. Future endeavours may involve internal and external stakeholders of the university. The published thesis that reflects these findings will be a point of reference.

Setati (2005) states that everyone who participates in a research project benefits one way or another. Participants benefit from a research project in many ways such as financial gratitude or gifts, which may be costly to the researcher (ibid). It is hoped that the participants in this research project will benefit, not by means of financial gain or tangible gifts, rather through knowledge.

The participants were provided with feedback verbally and soft copies of my thesis on completion of the research project. By providing promised feedback to the participants, the researcher shows traits of trustworthiness. Trustworthiness is an important and recognized aspect in ethical research (Setati, 2005). Gunawan (2015) states that trustworthiness is a combination of validity and dependability.

### **3.9 Conclusion**

This chapter outlines the research design that was used to describe the sustainability focus of the Faculty of Economics and Information and Technology Systems of Walter Sisulu University. The chapter includes an explanation of the research methodology, an interpretivist approach using a case study. Data generation and management is also discussed in the chapter as well as the data analysis process. Finally, the chapter reflects on how data validation and ethical considerations are dealt with.

## **CHAPTER 4: DATA PRESENTATION**

### **4.1 Introduction**

This chapter presents the data generated for the study. The data gives insight into the research question which explored how sustainability was reflected in the curriculum, community engagement and research foci and practices of the FEITS. The chapter is divided into two sections. Section 4.2 covers the sustainability foci and describes these in terms of the contextual realities, the socio-ecological issues and risks, and sustainability discourse. Section 4.3 covers the sustainability practices of the FEITS and describes these in terms of alignment with green skills and green jobs, assessment practices, WIL, participation in stakeholder platforms and projects, and course development in response to local development needs. Data describing curriculum, community engagement, and research, from all data generation tools, are discussed in an integrated way across all these sections. This integrated approach to data presentation is consistent with a systems perspective on universities and their role in communities. The significant role of universities in communities is discussed in Section 2.5.

### **4.2 Sustainability foci**

This section reports on the sustainability foci reflected in the curriculum, research, and community engagement activities of FEITS. This section draws inspiration from the 17 sustainable development goals that are referred to in Section 2.2. An integrated effort to address sustainability concerns is explored in Sections 2.2.2 and 2.2.3.

#### **4.2.1 Contextual realities**

The data generated from the FEITS reflect inequality as the only contextual reality. Section 2.2.6 reflects poverty that emerges as a result of inequality, which is another contextual reality that is visible in the local community where the FEITS is situated. Inequality was mentioned during interviews and during

content analysis of the following modules: Development economics, Supply chain management, Labour relations and Development economics.

#### *4.2.1.1 Inequality*

Inequality is one of the main dimensions of sustainable development (Castells-Quintana et al, 2019).

There are different categories of inequality, and they are explored in Section 2.2.5. The Public Economics learner guide reflects that inequality in our communities is revealed in the redistribution of public resources (CO.3). In a semester test for Public Economics, Nozick's Entitlement Theory is applied to address inequality through redistribution of income from the rich to the poor (CO.3 Annexure: Semester test). Nozick's entitlement theory considers three principles, namely: justice in acquisition, justice in transfer, and rectification in transfer (Black et al, 2011). According to the Public Economics learner guide, all the above principles of Nozick's entitlement are aimed at rectifying historical injustice related to fair acquisition, distribution, and transfer of state resources, as well as gross distributive inequalities thereof. In Public Economics, students are instructed to illustrate and describe allocation efficiency (during the use of public funds) as one of the elements of welfare (CO.3 Annexure: Semester test). Public Economics students also evaluate how Nozick's Entitlement Theory (an economic theory) is applied to address inequality through redistribution of income from the rich to the poor (CO.3 Poster presentation). As part of their assessments, the same students who are mentioned above are instructed to evaluate the concept of "rent seeking" and how it can cause economic inefficiency (CO.3 Annexure: Semester test). The lecturer for Public Economics explained that rent seeking is an economic concept that focuses on individuals or institutions who seek to acquire or increase their financial gains by manipulating economic resources without producing any wealth for the society. The lecturer for Public Economics explained that rent seeking has a direct impact on efficient allocation of resources, that in turn increases the levels of inequality (LI.3).

Supply Chain Management considers the assessment and selection of suppliers in various institutions. Preferential procurement is considered in the module. It is suggested that this be done by prioritizing emerging and local suppliers to allow them to participate in the economic mainstream, thus curbing the inequality gap among business owners (CO.4). According to the lecturer for Supply Chain Management, the supply chain management process helps these institutions to comply with policies such as the BBBEE (Broad Based Black Economic Empowerment Act), while also “responding to concerns related to small business as reflected in the Integrated Development Plan (IDP) of the local municipalities”. All the municipalities within the Chris Hani District take into consideration the BBBEE Act (LI 4).

In Labour Relations 2, students are given real case examples in order to analyse South African labour relations issues. This exercise demonstrates their practical application skills (CO.5). The relationship between the employer and the employee is considered. The labour legislations and laws, such as the Labour Relations Act, Affirmative Action Act, Employment Equity Act, and Skills Development Act, protect employees against exploitation “that may result from discrimination and bias that may possibly result in inequalities in the working environments” (LI.5). The lecturer for Labour Relations 2 expresses the view that labour legislations play an important role in ensuring that inequality is curbed in the working environment (LI. 5).

An annexure (Semester test) of the course outline for Development Economics reflects an instruction to use the Human Development Index (HDI) as a tool of evaluating sustainability concerns (CO.1). The HDI is used for “assessing sustainability aspects such as levels of literacy and acceptable standards of living”, among others. However, the points concerning the HDI do not include the inequality-adjusted Human Development Index (IHDI) as a special indicator, nor is it integrated into the above test question. The relevance of the HDI and a comprehensive explanation thereof is explored in Section 2.2.4.



The following reflects in the course outline of Development Economics as an assessment question: “To make the biggest impact on development, societies must empower and invest in women. How can that help turn communities from underdevelopment to development?” (CO.1 Annexure: Semester test). The empowerment of women begins with acknowledging diversity and embracing it. Encouraging students to embrace diversity can impact positively on reducing inequality. During a discussion forum, Blackboard rules are set whereby students are instructed to embrace diversity and respect each other, regardless of their race, background, or cultural beliefs. (OB.2).

#### **4.2.2 Socio-ecological issues and risks**

The data that reflects socio-ecological issues and risks presented in this section is observable in the FEITS. In section 2.2.6 examples of socio-ecological issues that are observable in the Eastern Cape Province where the WSU is situated are described. However, they are not identical to the socio-ecological issues observable in the FEITS.

##### *4.2.2.1 Water and sanitation*

The chairperson of the Research Committee argues that the FEITS’ research projects will contribute towards the socio-ecological transformation of the Chris Hani District. It is hoped that the partnership between the Walter Sisulu University, Enoch Mgijima Local Municipality, and the Chris Hani District Municipality will make this contribution possible. This envisaged partnership echoes the “wholes and wholeness” described in Section 2.2.3, which highlights the complementary nature of sub-systems in addressing local sustainability changes. The above-mentioned municipalities are external stakeholders, while the FEITS is an internal stakeholder of WSU.

This partnership is led through the FEITS’ research projects that are assisting the municipalities to improve service delivery, especially with matters related to quick responses to the needs of the community (INT.RCC). The development of a phone-based service delivery application system for the municipality is one of

the rapid response techniques that will contribute to the socio-ecological transformation of Enoch Mgijima Local Municipality through this partnership. It is envisaged that the above-mentioned phone-based application will address challenges related to water and sanitation, among the sustainable development concerns described in Section 1.4.3. According to the chairperson of the research committee, “the project related to clean water and sanitation is known as ‘smart water’, which will be made possible by the above-mentioned partnership that also includes the Council of Scientific and Industrial Research (CSIR)” (INT.RCC). Once again, the above-mentioned partnership reflects systems thinking in addressing sustainability concerns.

The Lecturer for Public Economics explained that during the enrolment in Public Economics, “students are taught the vitality of conducting cost benefit analysis during the use of public funds in development projects”. This analysis is a form of sensitivity analysis of life in water and on land that is conducted by public institutions (e.g., municipalities and development agencies) within Environmental Impact Assessments with institutions such as the Department of Environmental affairs (LI3). During the lesson on Public Economics, the cost benefit analysis model is used as a method of evaluating the implementation of projects, especially development projects in the public sector. Conducting such an analysis is also meant to ensure that the project outcomes do not negatively influence the welfare of the local communities (OB.2).

The Supply Chain Management course considers issues relating to the relationship between the supplier and businesses (CO4). The lecturer for Supply Chain Management gave an example of the relationship between suppliers and businesses: procurement of water and tanks and sanitation pipes or septic-tanks for the local communities.

During an online (Blackboard) lesson of Development Economics, the MDGs were briefly described. The focus was on Goal 7: Ensuring environmental sustainability. Deliberations were on whether it is possible to reverse loss of

environmental resources. “The possibility of reversing environmental damages such as air, water and soil pollution, soil erosion and deforestation is unlikely,” said one student (OB.1). In further discussion of Goal 7, the lecturer highlighted the following points: enforcing implementation of environmental policies and programmes of the country and reducing the proportion of people without sustainable access to safe drinking water (OB.1).

#### *4.2.2.2 Food Security*

The chairperson for the research committee explained that “Hunger and food shortages” are recognized as one of the most dominant concerns of the FEITS’ research committee (INT.RCC). The community engagement report is supported by the research committee report, as the latter reflects that food security was identified as one of the research niche areas of the faculty. According to the 2019 consolidated community engagement report, one of the faculty’s research niche areas was to address food security as a sustainability concern. The FEITS is in the process of implementing a short course in agribusiness that will upskill local farmers. This course aims to equip farmers with business skills. It is hoped that this type of empowerment will enable farmers to participate in the Department of Education’s school nutrition programme that responds to the challenge of food shortages in local communities. The 2019 consolidated community engagement report reflects that local schools are encouraged by the Department of Basic Education to procure nutrition programme supplies from local suppliers, such as local farmers and local emerging businesses (CER). The Department of Basic Education’s determination to integrate farmers into the school nutrition programme underlines the urgency of empowering and upskilling these farmers through the faculty’s research niche areas.

#### *4.2.2.3 Climate change*

The FEITS’ community engagement report reflects that the Faculty Research Committee often makes use of stakeholder engagement platforms (at all spheres of government: local, district, provincial and national levels) to enhance current

research projects within the faculty. These platforms are generally in the form of organized stakeholder meetings, summits, and *indabas*. Such sessions usually take place quarterly, or by invitation from various stakeholders (RCR 4).

The FEITS' community engagement report reflects that one of the stakeholder engagement platforms mentioned above is the Eastern Cape Agricultural Summit. Some of the faculty's researchers with research interests in agribusiness attended this meeting in September 2019 (on behalf of the research committee). The research chairperson stated that during the summit deliberations it was indicated that there is an urgent need to integrate climate change related modules into agribusiness related qualifications. The fourth quarter research committee report suggests that this integration could contribute towards sustaining rural farmers. Farmers who are registered for agribusiness qualifications will be introduced to sustainable resource use. An example of these resources is alternative energy sources. Sustainable resource use may also include engineering and value addition activities (RCR:4) Alternative energy sources are important aspects of the response to climate change, as argued in Section 1.7.

The course outline for Development Economics reflects the importance of considering environmental degeneration in economic development matters (CO1). Environmental deterioration often results from climate change (Andersson et al., 2018). The causes and effects of climate change in the Eastern Cape are explored in Section 1.2. According to the Development Economics lecturer, methods of addressing climate change issues that are directly linked to development projects are reflected in the prescribed textbook and deliberation on climate change is often considered during the consideration of Local Economic Development projects (CO1).

The lecturer for Development Economics argues that, although initially intended to address poverty related issues and inequality, development initiatives sometimes result in environmental problems. The lecturer on the Development

Economics module further stated that the course includes methods of addressing climate change through partnership with various stakeholders (LI.1). By making use of an integrated approach to addressing climate change, the FEITS is applying systems theory, as it makes use of both internal and external sub-systems of the of WSU as articulated in Section 2.2.4.

In the Public Economics course, negative externalities that result from production activities are considered. Different types of externalities and their causes are described in Section 2.2.6. Students are instructed by the lecturer to explain how the negative externalities contribute to climate change (CO3). In a Public Economics lecture, students mentioned negative externalities that exist in Enoch Mgijima Local Municipality, namely air pollution and water pollution (OB.2) Negative production externalities were also identified in Queendustria, which is situated in Komani.

Queenstown was identified as the economic hub of the Chris Hani District Municipality. The lecturer for Public Economics stated that this area was proposed to be a Special Economic Zone (SEZ) (Chris Hani District Municipality, 2019). The main aims of the SEZ proposal are to meet developmental objectives that focus on job creation, poverty alleviation, the improvement of the competitiveness of the main economic sectors (agriculture and agro processing) and the attraction of foreign investment (ibid). The identification of negative externalities (see examples of negative externalities in Section 2.2.6) helps to emphasize the negative effect they have on various factors such as livestock, air, water, and forestry (LI 3). The students in Public Economics argue that negative consumption externalities are also visible in local townships. These externalities are in the form of dirty water in the streets and running sewage. Such externalities lead to environmental depletion and harm livestock and life (OB.2).

#### **4.2.3 Sustainability discourse**

The sustainability discourse of the faculty focuses on the curriculum, community engagement and research activities of the FEITS. The faculty's foci

draw inspiration from the 17 sustainable development goals that are described in Section 1.4.

#### *4.2.3.1 Inclusive and sustainable economic growth and prosperity*

The course outline for Development Economics reflects concerns for inclusive and sustainable economies in the local context. This is illustrated through the analysis of local regions using the Human Development Index (HDI) to distinguish prospective sustainability aspects (CO1: Annexure: Semester test). The application of the HDI reflected in the prescribed textbook does not only focus on the local municipal areas. Rather, it also considers the provincial area in comparison to the rest of South Africa. The HDI forms part of semester assessment. When students are instructed to make use of the HDI during an assessment, they may decide to do an analysis of two local regions, and they will not be penalized for that, as they will have a better understanding of sustainability concerns that affect adjacent local areas (LI.1).

Entrepreneurship Skills as a module considers corporate entrepreneurs as well as key success factors that affect the sustainability of entrepreneurship (CO.2). The lecturer for Entrepreneurship Skills cited that the factors that affect the sustainability of entrepreneurship might come from the external environment of the business. These factors include aspects of the political system, economic system, environment system and technology (LI.2). The above aspects of the external and internal environment of a business exist where the business is operating.

During a Development Economics lesson, the MDGs that preceded the SDGs were discussed, with the focus on the following:

- Eradication of extreme poverty and hunger
- Achievement of universal primary education
- Promotion of gender equality and women empowerment
- Reduction of child mortality
- Improvement of maternal health

- Fighting HIV/AIDS, malaria, and other diseases
- Ensuring environmental sustainability
- Development of global partnership for development (OB.1)

#### *4.2.3.2 Health and well-being discourse*

Public Economics as a module equips students to identify local sustainability concerns and realities, as students are instructed to identify negative externalities that appear in recent local newspapers (*The Representative* and *The Daily Dispatch*). Negative externalities are always related to sustainability concerns, as they affect the welfare of the citizens. Negative consumption externalities related to water and sanitation frequently exist in the townships of the Enoch Mgijima Local Municipality (The Representative, 2020). Neglected waste and sanitation systems often result in health challenges. The lecturer of Public Economics explained that during lectures, identified negative externalities are discussed in groups and illustrated in diagrams in order that students may understand further their impact on local communities (LI.3).

In the Public Economics module, theories such as Bergson's theory are used to evaluate regional current scenarios in terms of social welfare, as this theory considers the economic situation (employment, poverty), social affairs (health and safety), environmental issues (air, soil, and water) (LI.3). When negative externalities have been identified, students are instructed to illustrate how the externalities can be addressed by means of Pigouvian taxes, regulatory measures and subsidy or cap and trade programmes, for example (LI.3). During their enrolment in Public Economics, students are also asked to identify merit goods in the local communities. "Merit goods may include health services, early education facilities, public libraries and free school feeding programmes and community recreational facilities" (LI.3).

#### *4.2.3.3 Peace and justice discourse*

The lecturer for Labour Relations states that "Labour Relations as a module also reflects on local activities such as strikes and retrenchments that occur in local

institutions”. In the module, examples that occur publicly (published on local media platforms: radio, local newspapers) are considered. Popular examples are municipal strikes that affect services by the municipality to local communities e.g., cleaning of streets (these speak to SDG 3), provision of water and sanitation services (these speak to SDG3) (LI.5). The lecturer for Labour Relations argued that strikes are prevalent in the Enoch Mgijima Local Municipality as a result of the frequent disturbance of service delivery (refusal collection and water services) (LI.5).

### **4.3 Sustainability practices of the FEITS**

The FEITS is currently responding to the sustainable development goals mentioned in Section 1.4 through its sustainability practices. Reference to and implementation of sustainability practices can be found in the content of various qualifications of the faculty, in its research projects, and in various community engagement activities.

#### **4.3.1 Alignment with green skills and green jobs**

When students enrol in an academic qualification, they anticipate that their studies will assist them in choosing a fulfilling career. Therefore, it is vital that course learning outcomes are linked to relevant career paths. Course learning outcomes that are aligned to potential careers enable students to be self-determined. This idea of integrating skills with curriculum is discussed in detail in Section 2.4. The qualifications earned from FEITS should ensure that students are directly equipped for future careers. The qualifications outlined in Table 3.1 reflect a consideration of green skills and green jobs. The modules that reflect green skills and green jobs are Development Economics, Public Economics, and Entrepreneurship Skills. The nature of green skills is explored in Section 2.5.

The lecturer for Development Economics does not see a direct link between the learning outcomes of the course and relevant career paths for the students. “However, BCom graduates have an opportunity to explore a wide range of career



opportunities, such as becoming economic analysts, business analysts, independent entrepreneurs, or business advisors, just to mention a few” (LI.1).

As far as the Entrepreneurship Skills module is concerned, there is no direct link between learning outcomes and student career paths (L1.2). However, graduates of the Diploma in Financial Information Systems can explore a wide range of career opportunities such as becoming financial analysts, business analysts, independent entrepreneurs, or business advisors, just to mention a few. The course outline for Entrepreneurship Skills contradicts the statement made by the lecturer of the course, as part of the welcoming and introduction in the course outline says: “I trust that you will find this course helpful in stimulating you to become an entrepreneur and/or business manager”. This statement shows that the entrepreneurship module is envisaged to prepare the students for their future careers, as it is reflected on the outcomes of the module content (learning outcomes). The course outline further states: “should students decide to be involved in the corporate world, entrepreneurial skills will allow the student to adapt his/her competencies in preparation for a career in Accountancy, Business and Financial Management fields” (CO.2).

Acquiring a Diploma in Human Resource Management is also a requirement for professional registration on boards for people practices; therefore, graduates of this qualification can also explore that opportunity (CO.5). On acquisition of their Diploma in Human Resource Management, graduates can be employed in places such as the Commission for Conciliation, with roles in Mediation and Arbitration (CCMA), Management Consultancy, Human Resources, and Labour Relations. (LI.5)

The Public Economics course helps students to understand the nature of public policy and the public sector in decision making. The focus is on public expenditure and tax policies (CO.3). Public Economics equips students for careers in the public sector (government departments, municipalities, government agencies) as development practitioners, local economic development

officers or public policy makers (LI.3). In Public Economics, students are also instructed to identify merit goods in the local communities such as health services, early education facilities, public libraries and free school feeding programmes and community recreational facilities (LI.3).

Supply Chain Management equips students to prepare and develop institutional budgets, development procurement plans and procurement policies. Once they graduate, they can be employed as members of an institution's bid committee and/or risk committee (LI 4). By virtue of being registered for a Bachelor of Commerce Degree, a student is equipped with commerce skills such as budgeting, needs analysis, responsible consumption, bookkeeping, and stock taking. A person with such skills can also assist local communities with services at a minimal cost, as compared to those asked by consultants and auditors (LI.4).

In an assessment task, Supply Chain Management students (SCM) are instructed to evaluate Congruent Computers' (a local computer company) relationships with suppliers, to realize mutual growth based on mutual trust. The lecturer for Supply Chain Management suggests that "A long-term, mutually beneficial mindset" is critical for selecting suppliers. In the same assessment task, students are instructed to analyse the procurement process of the same computer company and the relationship between the customer and the supplier (LI.4).

During the 2019 academic year, students who were enrolled for Organizational Behaviour assessed sustainability aspects by selecting a change model, applying it to a Nissan case study, and commenting on the results. The same students were instructed to identify a change model of their choice and describe how they would plan the merger process of the three former institutions (Eastern Cape Technikon, Border Technikon, Transkei University) to form Walter Sisulu University (CO.6). The application of change models that were used in Organizational Behaviour assisted students to understand how an institution could be transformed to contribute to decent work and industry innovation.

### **4.3.2 Assessment practices**

The learner guide for Development Economics states that students will be assessed during the duration of the course by means of formative and summative assessments. However, there are no details given of the assessment methods (CO.1).

The lecturer for Development Economics indicated that student assessments would not be entirely traditional. Examples of traditional assessment are reflected in Figure 2.4 of Section 2.3. The lecturer further mentioned that innovative methods would be used, varying from group presentations and group assignments to discussion forums on Blackboard. The lecturer added that students who are enrolled for Entrepreneurship Skills undertake field-based assessments. (LI.1). This type of assessment is different from the traditional approach of assessing students, as it involves collaborative learning. (LI.2). Forms of collaborative learning are reflected in Figure 2.4 of Section 2.3.

Students enrolled in Public Economics are instructed to develop group research posters (CO.3: Group research project: poster presentation). “These posters are a form of assessment that enhances teamwork while also enhancing the student’s ability to undertake research activities” (LI.3). Students who are enrolled in Organization Behaviour conduct research projects that focus on conducting surveys with local organizations of their choice, with a view to understanding job satisfaction (CO.6).

The teaching approach known as virtual learning, or e-learning, has become more convenient during the “new normal” created by the COVID-19 outbreak. Virtual learning also contributes to innovation and infrastructure as it requires that additional network and wi-fi facilities become available (OB.1, OB.2).

### **4.3.3 WIL**

The lecturer for Entrepreneurship Skills states that students who participate in Work Integrated Learning (WIL) implement in practice what they have learnt in

theory. The students who are registered for Entrepreneurship Skills and undergo WIL also contribute to addressing the local sustainability challenges experienced by Small and Medium Enterprises (SMEs). These students conduct feasibility studies for SMEs in the CHDM at no cost, as part of their WIL (CO.2).

Walter Sisulu University (Queenstown Campus) is invited to quarterly stakeholder engagement platforms to address challenges that are experienced by local schools. These challenges are often related to subject content. According to the chairperson of the Faculty Research Committee, the most worrying subjects are Mathematics, Accountancy, and Science (CER).

The chairperson of the Community Engagement Committee confirmed that “five academic staff members from the WSU Komani Campus assisted twelve local schools around the Whittlesea area”. WSU students enrolled for qualifications in Education and Accounting were placed in some local schools as mentors and tutors to learners during the period of Work Integrated Learning (CER). The chairperson of the Community Engagement Committee stated that “We focused on assisting teachers because of the previous matric failure rate. One of the underlying problems was under-qualified teachers” (INT.CEC).

The focus of this initiative was on critical subjects such as those related to Commerce and Science. The contact sessions took place four times a year (during university holidays). This intervention occurred during the 2018 and 2019 academic years. The chairperson states that the Department of Basic Education in the Chris Hani District sent a letter of gratitude and acknowledged the university’s contribution to a good matric pass rate during the 2018 academic year. The statistics and details of the success rate were not provided, however (INT. CEC). Systems thinking is reflected in the above-mentioned intervention to help improve the matric pass rate, as it was a collaborative effort between the internal and external sub-systems of the WSU.

#### **4.3.4 Participation in stakeholder platforms and projects**

During the deliberations of the summit (Eastern Cape Agriculture Educational and Skills Summit) that is mentioned in Section 4.2.2.3), it was emphasized that it is essential to upskill and reskill local graduates. The 2019 third quarter community engagement report reflects that one “way of upskilling these graduates is by including a module in agriculture-related qualifications that deals with running successful agricultural cooperatives, which will encourage them to go commercial” (CRC:4).

The chairperson of the Community Engagement Committee argues that “not all farmers are in a hurry to go commercial. An example of such are small scale piggery farmers at Zweledinga in Whittlesea. These farmers need an instant intervention that will assist them to deal with existing challenges related to unemployment and food security. Their current interest is to be organized as small-scale farmers in piggeries which will immediately address community needs related to poverty and food shortages (INT.CEC). The background to an integrated approach of addressing sustainable development is explored in Section 2.2.3.)

Both the community engagement and research committees noted that WSU has partnered with the Department of Social Development for the purpose of maximizing its impact on emerging farmers (RCR:3, CER). The FEITS has also partnered with the Black Management Forum (BMF) during the process of developing short courses on agribusiness. An important aspect of this partnership is the drive to assist local farmers with engineering in farming, for the purpose of value addition. According to the 2019 fourth quarter report, the partnership between FEITS and the BMF will also contribute towards building business skills and will contribute towards long-term growth of local farmers (RCR:4).

However, there is contradiction between the focus of the faculty’s research projects and the needs of some local communities that have an interest in

farming. According to the chairperson of the Community Engagement Committee: “These communities want to focus on subsistence farming for a start, and they need start-up resources” (INT.CEC). The research committee report notes that potential partners and funders such as the Department of Rural Development and Agrarian Reform as well as Local Economic Development and sections of various local municipalities were recommended as possible support organizations for these projects (RCR:3).

The third quarter research committee report reflects that WSU Komani Campus and Fort Cox College have signed a memorandum of understanding for the development of agribusiness short courses (RCR:3). The community engagement report reflects that the above-mentioned partnership between the two institutions will enable the FEITS to learn from Fort Cox College ways of making agribusiness attractive to the youth and emerging farmers, by skilling them in smart agriculture and the integration of technology into the agricultural sector (CER).

Further, innovative measures are yet to be implemented following the development of a memorandum of understanding between WSU, the CSIR, the Department of Science and Technology, the Chris Hani District Municipality, and the Enoch Mgijima Local Municipality. The chairperson of the research committee states that the collaboration amongst these stakeholders will focus on “smart water”, which is responding to the current challenges pertaining to the rendering of water services by the Local Municipality. The phone-based application developed through the above-mentioned partnership reflects systems thinking, as it was developed through an integrated approach, by internal and external stakeholders of WSU.

The chairperson of the Community Engagement Committee mentioned that a request had been made by the Department of Education for training in Public Management for their employees. The training required is in a form of a three-year diploma, offered at different times, in different venues, and at different costs

from the initial Diploma in Public Management offered in the Faculty of Economics and Information Technology Systems (INT.CEC).

The chairperson of the Community Engagement Committee reflected on a meeting with representative of the Department of Basic Education and the Enoch Mgijima Local Municipality, at which the representatives acknowledged that most of their officials lacked public management skills. The Chairperson of the Community Engagement Committee stated that, “equipping officials of the Department of Basic Education is anticipated to address some sustainability challenges in local communities, as they ought to be more efficient” (INT.CEC).

#### **4.3.5 Course development in response to local development needs**

The community engagement report reflects that short courses are in the process of being implemented through the guidance of the FEITS (CER). According to the chairperson of the Community Engagement Committee, “the short courses will cater for municipal workers, focusing on Accountancy, Information Technology, and Public Management”. The main objective of these short courses is to equip municipal workers with skills which will improve their performance while rendering public services (INT.RCC).

The 2019 third quarter report reflects that additional courses to be implemented are short courses in Entrepreneurship Skills and Agribusiness. They will focus on best practices and give rural farmers exposure to commercial farming. According to the report of the 2019 Eastern Cape Agriculture Educational and Skills Summit, it was argued that “Eastern Cape farmers have to be equipped in how to deal with existing challenges in their areas of operation” (RCR:3).

The 2019 third quarter report reflects that participant in the development of Agribusiness short courses are hoping that the content will be attractive to the youth and convenient for the local farmers, especially when the duration is less than six months (RCR:3).

The chairperson of the Community Engagement Committee argues that agribusiness may seem attractive to young farmers; however, some farmers require assistance with small scale farming that will immediately address the current needs of their communities. The chairperson further states that the six months short course will not alleviate the current challenges that small farmers are undergoing. Their needs are related to creating employment opportunities and addressing the challenge of food security (INT.CEC). Food security is one of the sustainability challenges discussed in Section 1.4.4.

#### **4.4 Conclusion**

The data that is presented in this chapter reflects the sustainability foci of the FEITS, its sustainability practices and possible future sustainability practices. In this chapter an integrated approach by which the sub-systems address the sustainability concerns of the faculty and local community is presented. The data presented in this chapter address the following sustainable development goals: zero hunger (SDG2), good health and well-being (SDG3), quality education (SDG4), gender equality (SDG5), clean water and sanitation (SDG6), sustainable cities and communities (SDG11), responsible consumption and production (SDG 12), climate action (SDG 13), peace, justice, and strong institutions (SDG 16) and partnership in goals (SDG 17).



## **CHAPTER 5: FINDINGS ON THE SUSTAINABILITY FOCUS OF THE FACULTY OF ECONOMICS AND INFORMATION TECHNOLOGY SYSTEMS**

### **5.1 Introduction**

This chapter provides the results of the research study with regards to the sustainability focus of the FEITS. It includes discussions that assist in answering the main research question which is: How is sustainability reflected in the curriculum, community engagement and research foci and practices of the FEITS?

In the study, systems theory is used to analyse the curriculum as well as analyse research and community related activities of the faculty. An application of systems theory considers how all the sub-systems of the faculty (faculty, students, community, and affected stakeholders) complement each other in addressing sustainability concerns.

The data interpretations in this chapter reflect the main findings from the Faculty of Economics and Information and Technology Systems with regards to its sustainability focus. The focus is on the various sub-systems of the FEITS with consideration of two main concepts, namely, sustainable development and higher education curriculum. Consideration of these two main concepts is directly linked to the implementation of the SDGs. The implementation of the SDGs requires an inclusive approach that encompasses the institution's internal and external environment. This integration is reflected in Figure 2.1 (Section 2.2.2).

### **5.2 Discussion of sustainability foci**

The following discussion on the sustainability foci of the FEITS draws inspiration from the 17 sustainable development goals that are referred to in Section 2.2. The data reflects that the sustainability foci of the FEITS are related to contextual realities, socio-ecological issues and risks and sustainability discourse, which

are like those experienced by other universities within the SADC region as mentioned in Sections 1.5.1, 1.5.2 and 1.5.3.

### **5.2.1 Contextual realities**

The curriculum of the FEITS reflects inequality as a contextual reality that exists in society. Inequality is revealed in the Public Economics module as one of the major discrepancies caused by inefficient distribution of resources, rendering of services by the government to the public, and rent-seeking. Public resources are initially aimed at improving the welfare of people (Black et al, 2011). However, due to inefficiencies in resource allocation and distribution, inequality is rampant (ibid). The argument of Mount (2009) on inequality, described in Section 2.2.6, is reflected in the public economics module. Castells-Quintana et al. (2019) confirm that inequality has a negative effect on sustainable development.

As the data in Section 4.2.2.1 reflects, inequality does not only affect the economic sector, but has a negative effect on various sectors, such as human resource management and the business sector. Therefore, it is important for the FEITS to reflect how inequality affects sectors that are aligned to all modules in the faculty.

### **5.2.2 Socio-ecological issues and risks**

The data generated in the FEITS with regards to water and sanitation, food security and climate change is related to socio-ecological matters. The Uganda Martyrs University discussed in section 1.5.2 also addresses socio-ecological matters such as water conversation.

In Section 2.2.6, water and sanitation are described as areas where the Chris Hani District Municipality, where the FEITS is situated, is experiencing major backlogs. The 2019 community engagement report reflected that the employment of a service provider to monitor the functioning of the municipal personnel is not an adequate measure to deal with the existing problems related to water and sanitation.

The Public Economics module also refers to water and sanitation as examples of negative externalities that affect the welfare of the local communities (Black et al, 2011). The phone-based application to enhance service delivery in the Enoch Mgijima Local municipality is a response method related to water and sanitation. The development of the above-mentioned application is an integrated approach to address the sustainability challenges reflected in Section 2.2.6. According to Bäckstrand (2006), the above-mentioned integrated approach reflects a multi-stakeholder partnership. The above-mentioned multi-stakeholder approach is like that of Rhodes university, reflected in Figure 2.1. Togo & Lotz-Sisitka (2013) state that the university's contributions to addressing sustainability are driven through consultation with the local community and relevant stakeholders.

Food security interventions are considered in the FEITS through the stakeholder platforms mentioned in Section 4.3.4 and echo the Statistics South Africa report (2019) that emphasises that food security is one of the major socio-ecological issues experienced by South African Citizens. The concerns of the chairperson of the Community Engagement Committee regarding the urgent intervention needed to address food security challenges experienced by farmers in Whittlesea, links with the work of Baiphethi and Jacobs (2009), who find that food security is most prevalent in the former homelands in South Africa. Food security and climate change interventions that are seen in the FEITS are similar to those made by the Uganda Martyrs University discussed in section 1.5.2.

Climate change has been identified by the faculty's Research Committee as a sustainable development concern. The details of these findings are described in Section 4.2.1. The faculty's fourth quarter research committee report reflects the urgency of integrating climate change concerns into agribusiness-related qualifications. This integration may possibly contribute to quality education, as it will equip local farmers with skills that will contribute to their survival.

Recontextualization of the curriculum for the purpose of enhancing quality may not be enough (Lotz-Sisitka et al, 2020), which is why a stakeholder-integrated

approach of addressing climate change concerns through local economic development projects is also explored in Section 4.2.1. This approach can be achieved by bringing together university sub-systems as suggested by systems theory, which is discussed in Section 2.2.2. University sub-systems that are important in addressing local sustainability concerns are also discussed in Section 2.2.2.

University sub-systems are external as well as internal. Some of these sub-systems are made up of stakeholders who are implementing development initiatives and have formed partnerships with the university. A partnership in addressing local sustainability concerns is described in detail in Section 4.10.2. According to Togo and Lotz-Sisitka (2013), partnership and stakeholder integration during the implementation of development initiatives improves the scale of implementations, while enhancing the quality of response to development challenges. Each partner can play a role in assisting local farmers in dealing with climate change challenges according to their areas of specialization. However, it is essential to constantly monitor development initiatives throughout their lifespan, to ensure that they are sustainable (De Beer & Swanepoel, 2011).

### **5.2.3 Sustainability discourse**

The international village has become cautious of the urgency to address the SDGs (Landorf et al, 2008). In Section 2.2, the 17 SDGs that are of focus in the international environment are described. The data generated from the FEITS reflects sustainability discourses related to health and well-being, peace and justice, inclusive and sustainable economic growth and health and well-being.

One of the prevalent sustainability discourses that surfaced in the data from the FEITS pertains to peace and security. The Labour Relations module reflects that disruption of peace and security results largely from dissatisfaction with service delivery by local municipalities such as the Enoch Mgijima Local municipality, where the FEITS is situated. The phone-based application mentioned in Section

4.2.2.1 reflects an integrated approach to addressing one of the threats to peace and security prevalent in the Enoch Mgijima local municipality. An inclusive approach to implementing SDGs is reflected in Section 2.2.2. The above-mentioned integrated approach echoes Gupta & Vegelin (2016), who emphasise that an integrated approach to addressing SDGs involves many sectors, such as the education sector, the environmental sector and the economic sector.

Peace and security interventions that are seen in the FEITS are similar to those made by the University of Malawi, Uganda Martyrs University and University of Zambia discussed in section 1.5.2.

### **5.3 Discussion of sustainability practices**

Sustainability practices are important for HEIs as they are the agents of transferring knowledge to the local communities (UNESCO, 2017). The data from the FEITS reflects that sustainability practices that are related to green skills, green jobs, pedagogical practices, and WIL resonate with the sentiments of Amaral et al (2005), who maintains that HEIs are gradually beginning to take active measures to contribute to sustainable development.

#### **5.3.1 Alignment with green skills and green jobs**

The Development Economics module reflects an approach to inclusive and sustainable economic growth and prosperity through the application of HDI. The latter is applied in a pedagogical approach that reflects green skills in the curriculum of the FEITS. The application of the HDI in Development Economics echoes the sentiments of Jenkin et al (2017), that green skills are essential across the main sectors such as the economic sector.

Health and well-being discourse is reflected in the data related to the Public Economics module. Public Economics students are equipped to apply theories and regulatory measures that may have a negative effect on one's health and well-being, such as negative externalities. This exercise echoes the sentiments of universities that provide academic qualifications with a green curriculum

(Sustainable Investment, 2017). The Council of Australian Government (2009) argues that green skills are not only technical skills; they comprise of knowledge, values, and attitudes. The attributes of the green skills mentioned above are reflected in the pedagogical approach of Public Economics as suggested by the Council of Australian Government (2009).

### **5.3.2 Pedagogical Practices**

The pedagogical approaches reflected in the data generated from the FEITS show the use of both traditional and non-traditional approaches to assessment. The traditional approach used in the faculty is an approach whereby the flow of information and knowledge is regulated by the instructor (Communications, 2009). In contrast, the non-traditional approach used in the FEITs resonates with the work of Bjorke (2016), who suggests the use of the constructivist and socially critical learning approaches reflected in Figure 2.4.

### **5.3.3 WIL**

The data from the FEITS reflects endeavours to implement inclusive and sustainable economic growth and prosperity through the Entrepreneurship Skills and Development Economics modules. Students who are enrolled in Entrepreneurship Skills assist in conducting feasibility studies for local SMEs as a WIL exercise. The latter seeks to address SDGs 9, and 11, described in Section 2.2. The exercise of conducting a feasibility study reflects an inclusive approach of responding to SDGs, as referred to by Togo & Lotz-Sisitka (2013). The above-mentioned inclusive approach also reflects a systems-thinking approach to addressing sustainability measures, such as that of Chambers (1994). Systems thinking in Entrepreneurship Skills involves internal sub-systems (students, course content, module pedagogy, the Community Engagement Committee), and the external sub-systems (local SMEs and relevant government institutions). The intervention made by the FEITS through the Entrepreneurship Skills module confirms the commitment that universities have to students and the larger community specified by Wright (2004).

#### **5.3.4 Participation in stakeholder platforms and projects**

The FEITS' participates in stakeholder platforms through the Community Engagement Committee. These platforms' school intervention, which influenced the 2018-2019 matric pass rate, represented a response to SDG 4, described in Section 2.2. The positive output of the matric results in 2018-2019 through the stakeholder partnership resonates with the notion expressed by Grobbelaar (2005) that HEIs have a positive effect on achieving regional developmental initiatives. In the 2018-2019 academic year, the matric results improved as a result of an extra effort put by WSU, which echoes the sentiments of Grobbelaar (2005), who says that none of the 17 Sustainable Development Goals can be achieved without the contribution of higher education and research.

Stakeholder platforms and projects are also used by Rhodes university, Nelson Mandela University and the University of Fort Fare as platforms of addressing their local community sustainability challenges as described in Section 1.5.3.

#### **5.3.5 Course development in response to local development needs**

The agribusiness short courses that were proposed by the Community Engagement Committee are aimed at addressing food security and poverty related challenges that exist in Whittlesea and the surrounding areas. The above-mentioned scenario of an interconnection between the university and the community is similar to the approach reflected in Figure 2.1 and referred to by Togo and Lotz-Sisitka (2013).

The above-mentioned agribusiness short course is also aimed at enhancing the skills of local farmers, improving infrastructure, and contributing to long-term growth. These endeavours are addressing SDGs 1, 2, 8, 9 & 11, described in Section 2.2. The above-mentioned endeavours resonate with the sentiments of Togo and Lotz-Sisitka (2013), who speak of an integrated approach, identifying social ills and recommending methods of addressing them.

## **5.4 Summary of findings and recommendations**

The main findings of this study pertain, firstly, to sustainability concerns related to a contextual reality, and to inequality. Secondly, they address socio-ecological issues related to water and sanitation, food security and climate change. Thirdly, the findings engage with sustainability discourse related to inclusive economic growth and prosperity, health and well-being, peace, and security. Lastly, they concern sustainability practices related to alignment of green skills and green jobs to the curriculum, pedagogical practices, WIL, participation in stakeholder platforms and projects and course development in response to local development needs.

Sustainable Development is not a taboo topic in higher education. However, several lecturers find the topic and the language of education for sustainable development unapproachable (Cotton et al, 2007). It is necessary for the FEITS to embark on frequent public awareness campaigns focusing on implementing sustainable development initiatives. These initiatives should focus firstly on the internal sub-systems: students and university staff members and then on external sub-systems: stakeholders and local communities.

The emerging sustainability practices in the Faculty of Economics and Information Technology Systems are reflected in the curriculum, in research, and in community engagement activities. Local sustainability concerns that are currently being addressed by means of partnerships between the Research and Community Engagement Committees and local stakeholders must be monitored, and progress must be reported quarterly through the relevant stakeholder engagement forum.

There is no operational work related to sustainability practices on campus. Such practices could include waste management facilities, recycling facilities, bio-digesters, and renewable energy alternatives. I therefore propose embarking on the implementation of operational sustainability practices in the FEITS, through the Community Engagement Committee as well as other university sub-systems.



## **5.5 Limitations of the research**

Most of the participants for the research project participated as agreed when they were approached prior to commencement of the data generation process. However, due the Covid-19 outbreak, the teaching and learning environment took a complete turn away from blended learning to remote (e-learning). This change in the teaching and learning environment narrowed the scope of interacting with participants.

In addition to this, only six out of seven participants shared their course outlines, in order that document analysis could be conducted. The seventh participant withdrew without any explanation.

When approaching potential participants, the issue of confidentiality and anonymity of records was explained and therefore maintained throughout the study; the names and identity of the participants were not be revealed to anyone. This statement is also reflected on the signed consent form of participants (see Appendix: K).

Secondly, of the seven identified participants, only five made themselves available for interviews. The semi-structured interviews were all conducted telephonically or virtually, as described in Section 3.4.1. The remaining two participants were not available for interviews due to the changes in the mode of work, as well because of anxiety resulting from the change in the mode of conducting teaching and learning. Even as levels of lockdown were lowered (levels 1, 2 and 3), teaching and learning were strictly conducted online.

Thirdly, only three out of the seven lecturers allowed me to access their lectures on Blackboard (the online teaching and learning platform) for the purpose of conducting observations. These limitations restricted the possibility of fully utilizing the data-generation tools, validating acquired data and possibly acquiring additional data.

## **5.6 Future research**

WSU introduced an Institutional Strategic Plan (2021) which has integrated into it sustainable development initiatives. As a researcher, I envisage embarking on a comparative study of how the various WSU campuses progress in implementing the sustainability concerns, discourse and practices that are reflected on the strategic plan of the university.

## **5.7 Conclusion**

Universities all over the globe are implementing measures to address sustainable development challenges (Lotz-Sisitka et al, 2015). South African universities such as Rhodes University, University of Fort Hare and Nelson Mandela University are implementing sustainability practices (Togo & Lotz-Sisitka, 2013), (Grobbelaar, 2005), (Lotz-Sisitka et al., 2015). Therefore, I have sought to understand how sustainability concerns and practices are reflected in the curriculum, community engagement and research foci and practices of the Faculty of Economics and Information Technology Systems of Walter Sisulu university.

Systems-theory was applied in order to analyse the sustainability foci and practices of the faculty. I was able to gain insight into the following:

- Contextual realities that exist in the faculty
- Socio-ecological issues and risks
- Sustainability discourse
- Alignment of curriculum to green skills and green jobs
- Pedagogical practices
- Work integrated learning
- Participation in stakeholder platforms and projects
- Course development in response to local development needs

I was able to make recommendations with regard to the curriculum, community engagement initiatives, and the integration of sustainability practices into the operational activities of the faculty.

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## APPENDICES

### Appendix A: A Qualitative Unit-Based Sustainability Assessment Tool for conducting semi-structured interviews with lecturers.



#### **A qualitative Unit-Based Sustainability Assessment Tool for conducting semi-structured interviews with lecturers.**

Adaptation of the quantitative unit –based sustainability assessment tool for curriculum analysis. The tool will be focusing on how sustainability practices are reflecting in the course outlines, content, teaching approach and assessment practices of various qualifications.

**Name of university:**

**Name of Faculty:**

**Name of Department:**

**Name of interviewer:**

**Name of interviewee:**

**Name of the course in question:**

**Duration of the course:**

**Date of interview:**

**Main learning outcomes of the course:**

**Research Question: How are sustainability practices reflecting in the course outlines, content, teaching approach and assessment practices of various qualifications?**

**Questions:**

1. How does the course 'speak' to sustainability concerns in the local context (e.g. climate change, biodiversity, sustainable development interventions)?
2. How does the course show concerns for local sustainability concerns and realities?
3. How are the course learning outcomes linked to relevant career pathways for students?
4. How is the qualification committed to social-and ecological system transformations?
5. Are sustainability aspects assessed/examined during the course? If so, describe these.
6. How does the course make use of innovative assessment practices (e.g. discussion forums, group presentations, group assessments, field-based assessment)?



## Appendix B: A Qualitative Unit-Based Sustainability Assessment Tool for conducting semi-structured interviews with Chairperson of Community Engagement Committee.



### **A qualitative Unit-Based Sustainability Assessment Tool for conducting semi-structured interviews with the chairperson of the community engagement committee.**

Adaptation of the quantitative unit –based sustainability assessment tool for curriculum analysis. The tool will be focusing on practices and possibilities for the Faculty to contribute towards addressing local sustainability challenges through curriculum-linked community engagement initiatives.

**Name of university:**

**Name of Faculty**

**Name of committee:**

**Date of interview:**

**Main objectives of the committee:**

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**Research Question: What practices and possibilities are there for the Faculty to contribute towards addressing local sustainability challenges through curriculum-linked community engagement initiatives?**

1. How do community engagement activities 'speak' to sustainability concerns (e.g. climate change, biodiversity, sustainable development interventions)?
2. How sustainability issues are addressed in community engagement platforms?
3. Which stakeholders has the university partnered with to support engagements with new knowledge for addressing sustainable development challenges, and what interventions are implemented as a result of these partnerships?
4. What challenges and successes have emerged from the intervention outcomes of the partnerships that address sustainable development challenges?



## Appendix C: A Qualitative Unit-Based Sustainability Assessment Tool for conducting semi-structured interviews with Chairperson of Research Committee.



### **A qualitative Unit-Based Sustainability Assessment Tool for conducting semi-structured interviews with the chairperson of the research committee.**

Adaptation of the quantitative unit –based sustainability assessment tool for curriculum analysis. The tool will be focusing on areas in the Faculty's research projects that do, or could potentially, respond to local sustainability concerns?

**Name of university:**

**Name of Faculty**

**Name of committee:**

**Date of interview:**

**Main objectives of the committee:**

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**Research Question: What focus areas are there in the Faculty's research projects that do, or could potentially, respond to local sustainability concerns?**

**Questions:**

1. How do research niche areas 'speak' to sustainability concerns (e.g. climate change, biodiversity, sustainable development interventions)?
2. In which research projects has the university partnered to address sustainable development challenges and what type of interventions exist.
3. How are Faculty research projects committed to social-and ecological system transformations?
4. What challenges and successes occurred within social and ecological research projects?
5. Which research methodologies are used in Faculty research projects that do or could potentially respond to sustainability concerns?

## Appendix D: Notes from an interview with Lecturer A

  
RHODES UNIVERSITY  
Wits Academic Centre

**A qualitative Unit-Based Sustainability  
Assessment Tool for conducting semi-structured  
interviews with lecturers.**

Adaptation of the quantitative unit –based sustainability assessment tool for curriculum analysis. The tool will be focusing on how sustainability practices are reflecting in the course outlines, content, teaching approach and assessment practices of various qualifications.

Name of university:	WGU
Name of Faculty:	FEITS
Name of Department:	Management Studies
Name of interviewer:	Mrs K.B. KWSH
Name of interviewee:	Name with held for anonymity purposes
Name of the course in question:	Public Economics
Duration of the course:	Semester course
Date of interview:	21/08/2020.
<b>Main learning outcomes of the course:</b>	
<ul style="list-style-type: none"><li>* Evaluate the measures of the size of the Public Sector.</li><li>* Describe the theory of externalities according to Pareto Criteria.</li><li>* Explain the origins and consequences of rent-seeking.</li><li>* Hypothesis of the Cost-benefit analysis approach.</li><li>* Explain the negative externalities that result from climate change.</li></ul>	

1



**Research Question: How are sustainability practices reflecting in the course outlines, content, teaching approach and assessment practices of various qualifications?**

**Questions:**

1. How does the course 'speak' to sustainability concerns in the local context (e.g. climate change, biodiversity, sustainable development interventions)?  
 The course considers negative externalities that are resulting from manufacturing/farming/production in the surrounding or public goods (that may affect water services, dams & all natural resources)  
 Performing sensitivity analysis [Use, water life on land]   
 Use of natural resources for development projects using CBA (cost benefit analysis).  
 Example of abuse development.  
 Air pollution/livestock/forestry
2. How does the course show concerns for local sustainability concerns and realities?  
 Students are asked through local scenarios new paper handling to identify types externalities (positive or negative) that could or are affecting local communities.

3. How are the course learning outcomes linked to relevant career pathways for students?  
 Public, ~~equips~~ equips student for career in the public sector as development practitioner or as consultant working closely on development projects
4. How is the qualification committed to social and ecological system transformations?  
 After identification of negative externalities, students are asked to identify solution that can address these externalities (e.g. Pigouian taxes, regulatory measures or even cap and trade programmes).  
 Identification of Public, Private, Mixed Goods.

5. Are sustainability aspects assessed/examined during the course? If so, describe these.  
 The Application of Bergson's Theory for the purpose of maximising community welfare (quality of the environment (air, soil, water))  
 Evaluation of the Norwich's Entitlement Theory when evaluating inequality (community makes choices → redistribution of wealth)
6. How does the course make use of innovative assessment practices (e.g. discussion forums, group presentations, group assessments, field-based assessment)?  
 Poster creation, Discussion Forum (Black board).

Redistribution of income from rich to poor  
 Tax Subsidy  
 For poor & Subsidy  
 Dead weight Welfare loss

Loss of consumer surplus.  
 Potential suppliers boost their profits.  
 Rent Seeking Veil of Ignorance =  
 Reduces socio-economic efficiency through the poor allocation of resources, increased inequality & loss of government revenue [loss of consumer surplus].  
 CHS  
 Welfare principles not  
 are unjust  
 - Removes purpose

1





The confers does not have resource (HR, faculty)  
 There it is not funded

# RESEARCH QUESTIONS

- What practices and possibilities are there for the Faculty to contribute towards addressing local sustainability challenges through curriculum-linked community engagement initiatives?
- What focus areas are there in the Faculty's research projects that do, or could potentially, respond to local sustainability concerns?

*Ideally: teachers asked → upgrade teachers / grad teachers helped. on behalf of community problems.*

Which sustainable development concerns emerge in faculty research niche areas?

*We can't say we are focusing on a particular thing  
 Marie Perle / under qualified teachers.  
 They want us to be giving things (we don't have a focus).  
 We focus on what the community. The focus university is focusing on research funds. Addressed just been funding resources into addressing the*

In which research projects has the university partnered with in order to address sustainable development challenges?

*Yes, there is partnership but it is not what the community.  
 Non-alignment: These programmes cannot assist with the university and the addressing the local programme.  
 Community Eng. wanted to develop short-course for small farmers. Unemployment will still be visible. In the mean time it's not work. Time dimension prospect.*

How sustainability issues are addressed in community engagement platforms?

*Teacher trained programmes Faculty programmes help through capacity building. Eco Tourism sustained. [Heritage sites]  
 Helping to identify these sites.*

Which stakeholders has the university partnered with to support engagements with new knowledge for addressing sustainable development challenges and what interventions are implemented as a result of these partnerships?

*Local Chiefs, Department of Tourism, Local Municipality  
 Eco project, development of heritage sites.*

*Almost on all of them through Capacity building of schools  
 No Party, Quality Education, Food Security [Whitkasa]  
 poor through students. No hunger*

*Emile Ref. Ed. 4/11/16  
 Sustainable  
 Ngor-business  
 Project - small  
 State - saving  
 funding business*

**Appendix F: Notes of an interview with Chairperson of Research Committee.**

Adaptation of the quantitative unit –based sustainability assessment tool for curriculum analysis. The tool will be focusing on areas in the Faculty's research projects that do, or could potentially, respond to local sustainability concerns?

Date of interview: 10/07/2020.

They are not clearly articulated

17 Sustainable Development Goals

- 1. Industry & Innovation (9) [Infrastructure, Innovation, Techs]
- 2. Quality Education (4) [SDG 4: IR, Technology]
- 3. Reduce Inequality (10) [Incl. Sets, Assist. Shd.]
- 4. Partnerships for the Goals (17) [Science, Technology & Innovation, Mod. CSIR, already signed]

Participates to contribute to = BVC

Smart water system that will have local people read meters.

CHBM / Community

CHS



Recording?

**Research Question:** What focus areas are there in the Faculty's research projects that do, or could potentially, respond to local sustainability concerns?

**Questions:**

1. How do research niche areas 'speak' to sustainability concerns (e.g. climate change, biodiversity, sustainable development interventions)?

EmSC

There should be two/or one  
Food security/use of ICT are the ones that  
are addressing sustainability concerns.

2. In which research projects has the university partnered to address sustainable development challenges and what type of interventions exist.

We did not get into it full (MOU) → ICT collaborate with Enoch Algeria. People in rural area develop a computer based diary. Still on initiated. Now, was still.

to develop of an app. Together with the [EMLM]  
Approached by a municipality [develop training program]  
Focusing on the municipal public man. ICT  
No funds [with other half way] Partner-assist them.

3. How are Faculty research projects committed to social and ecological system transformations?

Quite a number of number  
Topic: ~~social public~~ community: unemployment, poverty, gender, graduates

✓ EmSC [NGO] ← Services: STPS [response of the community]  
Municipality: response to local and disciplinary issue.  
Youth unemployment, development of short courses  
Science & Technology (ICT), programming computer literacy.

4. What challenges and successes occurred within social and ecological research projects?

Challenges: Funding  
Commitment/participants.  
Lack of motivation

Successes: Progress: students (research-made progress).  
Faculty: Still in the process, many  
apply: proposal for funding [MTE 5  
[MTE SETITS]  
no feedback, 1

## Appendix G: Transcribed interviews with Lecturer A

Transcribed interview during the application of systems theory for curriculum analysis on emerging sustainability practices at the Faculty of Economics and Information Technology Systems. (A Case Study of Walter Sisulu University: Queenstown campus)

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Interviewer: K B Klish

Interviewee: Lecturer in the Faculty of Economics and Information Technology Systems (name withdrawn for anonymity purposes)

Location of Interview: Zoom (online)

Date: 20.05.2020

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**Interviewer:** How does the course 'speak' to sustainability concerns in the local context (e.g., climate change, biodiversity, sustainable development interventions)?

**Interviewee:** The course outline reflects the MDGs and makes emphasis of Poverty alleviation in Chapter 4 and Partnership for goals in Chapter 17

**Interviewer:** How does the course show concerns for local sustainability concerns and realities?

**Interviewee:** The course does not really show concerns for local sustainability concerns and realities. It focuses mainly on Regional or municipal district level and at the African content.

**Interviewer:** How are the course learning outcomes linked to relevant career pathways for students?

**Interviewee:** They are linked through assessments in the field. I will share one of the assignments. One of the focuses are on the use of Human Development Index (HDI) and comparing two areas in south Africa.

**Interviewer:** Do these areas need to be around Queenstown?

**Interviewee:** Not necessarily, they can be anywhere in South Africa. But it will be more convenient for them to understand it better when they are in the Chris Hani District.

**Interviewer:** How is the qualification committed to social and ecological system transformations?

**Interviewee:** The BCom degree by virtue of being in the commerce field, it plays a role in development and the socio-cultural aspects.

**Interviewer:** How so? Please explain to me what you mean.

**Interviewee:** BCom as a qualification empowers students in the field of commerce and they consider topics such as investments, capital, savings and income, business management and business cycles, development issues just to mention a few.

**Interviewer:** Are sustainability aspects assessed/examined during the course? If so, describe these.

**Interviewee:** Yes, they are. In one of the tests, there is a question that instructs the students to compare two places that show distinguishable differences by using the HDI indicators. In the same test, students are instructed to describe how investing in women empowerment can help turn communities from underdevelopment to development.

**Interviewer:** How does the course make use of innovative assessment practices (e.g., discussion forums, group presentations, group assessments, field-based assessment)?

**Interviewee:** I use Blackboard and make use of discussion forums, and group assignment. Prior to the COVID-19 outbreak, I also made use of group presentations.

## Appendix H: Transcribed interviews with Lecturer B

Transcribed interview during the application of systems theory for curriculum analysis on emerging sustainability practices at the Faculty of Economics and Information Technology Systems. (A Case Study of Walter Sisulu University: Queenstown campus)

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Interviewee: K B Klish

Interviewer: Lecturer for Public Economics

Location of Interview: Zoom (online)

Date: 21.08.2020

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**Interviewer:** How does the course 'speak' to sustainability concerns in the local context (e.g., climate change, biodiversity, sustainable development interventions)?

**Interviewee:** The course considers life on water and life on land during implementation of the public projects. For example, an institution that is going to implement a rural development project must conduct Cost Benefit Analysis. This analysis helps to determine how much damage will be done in that ecosystem and help the project implementers decide whether it is worth embarking on the project. Public Economics as a module also covers issues related to air and water pollution which I believe contribute a lot to climate change and sustaining life on land, water, and air. Externalities are also researched on, especially negative consumption and production externalities.

**Interviewer:** Can you please explain to me what an externality is.

**Interviewee:** Ok. An externality is an outcome that results from an economic transaction that negatively or positively affect individual well-beings. Individuals that are affected by these externalities are usually not compensated for the effects of the externality. So, externalities can either be negative or positive.

**Interviewer:** How does the course show concerns for local sustainability concerns and realities.



**Interviewee:** During the semester, students are given assignments and discussion on local scenarios that are related to negative externalities. For examples: They can look through local newspapers and other platforms for these externalities. When they have identified them, they must explain how they affect local communities? They must also explain the measures that are taken by authorities to address these issues.

**Interviewer:** How are the course learning outcomes linked to relevant career pathways for students?

**Interviewee:** Public Economics as a module equips the students to be aware of how the public sector functions. You see, at the beginning of the module they learn the composition of the public sector. The module also covers the public expenditure which is related to the budget allocated to the various government departments and its state-owned institutions. When credited with this module, students are prepared to become development practitioners Local Economic Development Advisers or even Independent Consultation that work closely with government institutions.

**Interviewer:** How is the qualification committed to social-and ecological system transformations?

**Interviewee:** When working on topics related to negative externalities, students are instructed to identify remedies or ways of addressing these externalities. This way they respond to socio-and-ecological matters.

**Interviewer:** Are there any examples of remedies or measures that have been mentioned by the students in these assignments?

**Interviewee:** Oh, yes. Most of them are even covered in the prescribed textbook. These remedies are related to government regulations, such as trade restrictions, a type of tax known as Pigouvian tax and other regulatory measures. In public economics merit goods and public services are also considered. These goods and services contribute to social and ecological transformation.



**Interviewer:** What type of merit goods and services do you to you consider?

**Interviewee:** We talk of public good such as health care services, educational facilities, such as free and subsidised schooling programmes, public swimming pools, public libraries and so on.

**Interviewer:** Are sustainability aspects assessed/examined during the course? If so, describe these.

**Interviewee:** They are examined through application of the Bergson's theory. This theory is concerned with social and community welfare. It also considers the quality of human life and the environment that surrounds people. The theory also focuses on redistribution of income from the rich to the poor which is facilitated by the government through its tax system. We also apply Nozick's theory that considers issues related to inequality and redistribution of land, property, and income in some instances.

**Interviewer:** How does the course make use of innovative assessment practices (e.g., discussion forums, group presentations, group assessments, field-based assessment)?

**Interviewee:** Due to the Covid-19 outbreak, assessments are conducted on Wizeup. Assessments are done as individual assessment, group assignments, discussion forums and poster presentations.

## Appendix I: Observation schedule for observations during curriculum implementation.



### **A qualitative Unit-Based Sustainability Assessment Tool for Observation of lectures during curriculum implementation.**

Adaptation of the unit-based sustainability assessment tool for curriculum analysis. The tool focuses on sustainability practices reflecting in the course outlines, content, teaching approach and assessment practices of various qualifications.

**NAME OF UNIVERSITY:** \_\_\_\_\_

**FACULTY:** \_\_\_\_\_

**DEPARTMENT:** \_\_\_\_\_

**NAME OF COURSE:** \_\_\_\_\_

**LEVEL OF COURSE:** \_\_\_\_\_ **DURATION OF COURSE:** \_\_\_\_\_

**QUALIFICATION OF COURSE:** \_\_\_\_\_

**LEARNING OUTCOMES OF COURSE:** \_\_\_\_\_

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## Appendix J: Notes of online (Blackboard) observations during curriculum implementation.



### A qualitative Unit-Based Sustainability Assessment Tool for Observation of lectures during curriculum implementation.

Adaptation of the unit-based sustainability assessment tool for curriculum analysis. The tool focuses on sustainability practices reflecting in the course outlines, content, teaching approach and assessment practices of various qualifications.

**NAME OF UNIVERSITY:** WSU

**FACULTY:** FEITS

**DEPARTMENT:** Management Studies

**NAME OF COURSE:** Development Economics

**LEVEL OF COURSE:** 2

**DURATION OF COURSE:** semester

**QUALIFICATION OF COURSE:** BCOMM.GENERAL

**LEARNING OUTCOMES OF COURSE: \_**

NOT clearly articulated on the course outline

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1. How does teaching and learning reflect respect for the environment?

As the MDGs are discussed in detail. One of the goals is ensuring environmental sustainability.  
Enforcing implementation of environmental policies and programs of the country.  
Reverse loss of environmental resources.  
Reduce the proportion of people without sustainable access to safe drinking water.  
Improvement in lives of at least 100 million slum dwellers by 2020.

2. How does teaching and learning acknowledge issues that affect the various sustainable development goals?

All the Eight MDG goals adopted by the United Nations in 2000 are discussed in detail.

- Eradicate extreme poverty and hunger
- Achieve universal primary education
- Promote gender equality and empower women
- Reduce child mortality
- Improve maternal health
- Combat HIV/AIDS, malaria, and other diseases
- Ensure environmental sustainability
- Develop a global partnership for development

3. How does the lecturer facilitate respect among students?

It is not reflected on the blackboard.

4. How does the teaching approach reflect innovative pedagogies for sustainability in teaching and learning?

The teaching approach is mostly using e-learning which is more sustainable in the new normal due to the COVID 19 outbreak. Contributes to innovation and infrastructure 4IR as there are additional networks for internet, Wi-Fi.

## Appendix K: A sample of observed teaching and learning on Blackboard

The screenshot shows a web browser window displaying a Blackboard course page. The browser's address bar shows the URL: `wiseup2.wsu.ac.za/webapps/blackboard/content/listContentEditable.jsp?content_id=_95252_1&course_id=_9940_1&mode=reset`. The page title is "Content - PUBLIC ECONOMICS".

On the left side, there is a navigation menu with the following items:

- PUBLIC ECONOMICS (ECO32Q2\_QF\_Q4113\_2020)
- Home Page
- Information
- Content
- Discussions
- Groups
- Tools
- Help

Below the navigation menu is a "Course Management" section with the following items:

- Control Panel
- Content Collection
- Course Tools
- Evaluation
- Grade Center
- Users and Groups
- Customization
- Packages and Utilities
- Help

The main content area is titled "Content" and has tabs for "Build Content", "Assessments", "Tools", and "Partner Content". It displays a list of content items:

- Leaner guide**: Attached Files: `Leaner Guide 2020 ECO 32Q1.doc` (211 KB)
- climate change and externalities**: Availability: Item is hidden from students. It was last available on Dec 9, 2020 11:59 PM. Attached Files: `Climate change_externalities_Group Assignment.docx` (77.174 KB)
- Unit 1**: Availability: Item is hidden from students. It was last available on Feb 28, 2021 11:59 PM.
- Unit 2**: Availability: Item is hidden from students. It was last available on Feb 28, 2021 11:59 PM.
- Unit 3**: Availability: Item is hidden from students. It was last available on Mar 31, 2021 11:59 PM.
- Unit 4**

The Windows taskbar at the bottom shows the search bar, taskbar icons for various applications, and the system tray displaying the date and time as 11:14 on 2021/08/27.

## Appendix L: An observed discussion forum for Public Economics

**Discussion Board**  
 Discussions are a good way to encourage students to think critically about your coursework and interact with each others' ideas. You can create discussions around individual course lessons or for your course in general.  
[More Help](#)

Create Forum Search

FORUM	DESCRIPTION	TOTAL POSTS	UNREAD POSTS	UNREAD REPLIES TO ME	11:11
<input type="checkbox"/> Unit 1,2&3	This forum is created for discussing the contents of unit 1,2 & 3 <small>Forum is no longer available. Available until: Wednesday, March 31, 2021 11:59:00 PM SAST.</small>	5	1	0	
<input type="checkbox"/> Discussion Forum: Units 4-7	This forum is created for interactions with regards units 4 to 7 <small>Forum is no longer available. Available until: Sunday, February 28, 2021 11:59:00 PM SAST.</small>	4	0	0	
<input type="checkbox"/> Climate change and externalities	<ul style="list-style-type: none"> <li>Identify externalities (positive and neagative) that exist in your local municipality.</li> <li>Illustrate the effects of the identified negative externality on the market and prices that affect the sale of goods and services.</li> <li>Describe the sustainable development mesures that can be implemented in order to deal with the negative externality that you have identified.</li> </ul>	5	0	0	

Displaying 1 to 3 of 3 items Show All Edit Paging...





## Appendix M: Analytical Memo 1: Curriculum implementation

Phase Analysis: Curriculum implementation - responding to research sub question 1.

Data sources ... Course outlines (CO1, CO2, CO3 CO4), observations (OB1, OB2), Lecturer Interviews (LI1, LI2, LI3, LI4, LI5)	Categories	Sub-categories	Extract	Data Source
Emerging Sustainable development concerns		Climate Change	<p>Purpose of the course: Linking economic development to "environmental decay"</p> <p>Development Economics in Ch4 directly speaks to methods of addressing climate change issues that are directly linked to development projects and how these projects sometimes result to environmental problems though they are initially meant to address poverty related issues and addressing inequality.</p> <p>Identification of negative production externalities that have an effect on climate change.</p>	<p>CO1,pg12</p> <p>LI.1</p> <p>CO.3 Pg 13</p>
		Recognizing the importance of preserving the environment	<p>Consideration of the negative externalities (Product and manufacturing) have a negative effect on livestock, air pollution, water pollution and forestry. As the MDGs are discussed in detail: One of the goals is ensuring environmental sustainability</p> <p>Enforcing implementation of environmental policies and programs of the country. Reverse loss of environmental resources.</p> <p>Reduce the proportion of people without sustainable access to safe drinking water. Improvement in lives of at least 100 million slum dwellers by 2020.</p> <p>Negative externalities: coal-fired power station, air pollution, water pollution result in environmental depletion, killing livestock, causing harm to animals that leave on water...</p> <p>In Public Economics inequality in our communities is reflected in the redistribution of public resources</p>	<p>LI 3</p> <p>OB.1</p> <p>OB.1</p> <p>OB.2</p>
		Inequality	<p>Evaluate how <b>Nozick's Entitlement Theory</b> is applied to address inequality through redistribution of income from the rich to the poor.</p> <p>Supply Chain Management as a module considers the assessment and selection of suppliers in various institutions. It considers preferential procurement by prioritizing emerging and local suppliers in order to allow them to participate in the economics mainstream curbing the gap of inequality among business owners</p> <p>Labour Relations 2 as a module mainly considers the relationship between the employer and the employee, as it guards against exploitation of employees that may result from discrimination and business that may possibly result to inequalities in the working environment</p>	<p>CO.3 Pg 13</p> <p>CO.3:annexure semester test</p> <p>CO.4 Pg 22</p>

Link of LO to relevant career pathways for students	<b>Promotion of linkage between qualifications and career paths</b>	<p>LO and student career paths. Instead, BCom graduates have an opportunity to explore a wide range of career opportunities such as As far as Entrepreneurship skills is concerned, there is no direct link between Learning Outcomes and student career paths . "Instead, graduates of the Diploma in Financial Information Systems have an opportunity to explore a wide range of career opportunities such as being financial analysts, business analysts, independent entrepreneurs or business advisors just to mention a few"</p> <p>If the students decide to be involved in the corporate world, entrepreneurial skills will allow the student to adapt his/her competencies in preparation for a career in Accountancy, Business and Financial Management</p> <p>I trust that you will find this course helpful in stimulating you to become an entrepreneur and/or business manager</p>
		<p>LI 2</p> <p>CO.2 Pg 3</p> <p>CO.2 Pg 3</p>
		<p>On obtainment of their Diploma, students who are enrolled for Dip.HRM can be employed as CCMA commissioners, Management consultants, HR practitioners even LR officers depending on the size of the organization</p> <p>LI.5</p>
	<b>Directly equipping students for future careers</b>	<p>Holders of the qualification will be able to operationalise some aspects of the core human resources management processes at a basic level and integrate them into an organisation's business processes. Holding this qualification could serve as a requirement for professional registration at associate level.</p> <p>CO.5 Pg 3</p>
		<p>The course equips students to become business advisors and business analysts.</p> <p>LI.2</p>
		<p>Public Economics equips students for careers in the public sector (government department, municipalities, government agencies) as development practitioners, LED offices or a public policy makers.</p> <p>LI.3</p>
		<p>student gets equipped with commerce skills such as budgeting, needs analysis: responsible consumption, book keeping, stock taking. They can also assist local communities with services at a minimal cost as compared to consultants and auditors</p> <p>LI.4</p>
		<p>The course seeks to develop capacity in managers or persons who are aspiring to hold management responsibilities within the commercial and public sectors. This provides students with with cutting edge advanced management skills by exposing them to the functional areas of business and management at a post graduate level</p> <p>CO.4 Pg 4</p> <p>Purpose of the course: -</p>

	<b>Consideration of SDGs in the course contents</b>	<p>The MDGs that preceded the SDGs were discussed in detail.</p> <p>Cost Benefit analysis is used as a method to evaluate the implementation of projects, especially development projects for the public. This is also meant to ensure that the off spins of the project are not at the cost of the people's livelihood and the environment.</p>	<p>OB.1</p> <p>OB.2</p>
Local sustainability concerns	<b>Promotion of inclusive and sustainable economic growth</b>	<p>Using the HDI to compare any two local places that show distinguishable differences.</p> <p>When students are instructed to make use of the Human Development Index during an assessment, they may decide to do an analysis of two local regions, and they will not be penalized for that as they will have a better understanding of sustainability concerns that affect adjacent local areas</p>	<p>CO 1:annexture semester test</p> <p>LI.1</p>
		<p>Focus of local sustainability concerns and realities in not much in a local context (zooming to the municipal context), but more on the regional level comparing it to the rest of the continent.This is covered in Ch5</p> <p>The course considers corporate entrepreneurship,Key success factors and external factors that affect sustainability entrepreneurship.</p>	<p>LI 1</p> <p>CO.2 Pg 9</p>
		<p>Factors that affect sustainability of entrepreneurs might come from the external environment-they vary from aspects of the political system, economic system, environment system and technology (LI.2).</p>	LI.2
	<b>Inequality</b>	<p>During the procurement of goods and services,institutions prioritise local suppliers and should look at important categories such as people leaving with disabilities, youth,women. This process helps to comply with policies such the BBBEE and responding to concerns related to small business in the IDPs of local municipalities.</p> <p>Students will be given real case examples to analyze on the South African labour relations issues to demonstrate their practical application skills</p> <p>Students are instructed to identify negative externalities that are reflected in local news papers (Rep and daily dispatch), Discussed in groups and illustrated for further understanding.</p>	<p>LI 4</p> <p>CO.5 Pg 10</p>
	<b>Analysis of promotion of good health and well-being</b>	<p>Consideration of local</p>	LI 3



Innovative assessment methods	Traditional assessment methods	developing business plans for local businesses could have a direct impact on the local community considering issues such as projection of employment opportunities and identifying local investors and local suppliers	LI.2
		The feasibility studies are conducted on local existing emerging businesses. This can be done by means of evaluating an existing business plan (checking viability aspects), or by developing a new one and ensuring that it covers all viability aspects	LI.2
		Once students have identified negative externalities that are reflected on local media platforms, they are further instructed to illustrate how these externalities can be addressed using various methods such as Pigouvian taxes, regulatory measures and subsidy or cap and trade programmes	LI.3
		students are also asked to identify merit goods in the local communities. "Merit goods may include health services, early education facilities, public libraries and free school feeding programmes and community recreational facilities	LI.3
		Labour Relations assist in implementing legislations that promote inclusivity and affirmative action which contribute to sustaining local economies	LI.5
	Non-traditional assessment methods	students will be assessed during the duration of the course by means of formative and summative assessments	CO.1
		student assessments will not be entirely traditional. Innovative methods will be used varying from group presentations, group assignments as well as discussion forums on blackboard	LI.1
		Students undertake field-based assessments. This type of assessments is different from the traditional approach of assessing students, as a result they are done with enthusiasm	CO.2-annexure group assignment LI.2 CO.3: group research-poster presentation
		Students are instructed to develop a group research poster "These posters are a form of an assessment that enhances team work while also enhancing the student's ability to undertake research activities"	LI.3
		Students conduct research projects that focus on conducting surveys on local organizations of their choice with the view of understanding job satisfaction	CO.6
		The teaching approach is mostly using e-learning which is more sustainable in the new normal due to the COVID 19 outbreak. This approach contributes to innovation and infrastructure (4IR) as there are additional networks for internet, Wi-Fi.	OB.1, OB.2

## **Appendix N: Analytical Memo: Community engagement and research activities**

Community engagement and research activities - research sub question 2&amp;3.


Data sources ... Community engagement report (CER); Research Committee Reports (RCR1,RCR 2, RCR3,RCR4) Chairperson Inter

Categories	Sub-categories	Extract	Data Source
Emerging Sustainable development concerns	Climate Change issues	There is a need to introduce climate change related modules to the curriculum.	RCR.(4) pg 3
	Food Security	One of the Faculty research niche areas.2 research projects focusing on food security. The short courses ,local farmers will contribute to the DoE school nutrition programme. No local farmers supply schools.	INT.RCC CER.pg 1
	Water and sanitation	Municipal Response time to W&S calls.	INT.RCC
	<b>Addressing sustainability issues in faculty committee platforms</b>	One of sustainability concerns that emerged was quality education in local schools Walter Sisulu University Queenstown Campus gets invited to quarterly stakeholder engagement platforms in order to address challenges that are experienced by local Five academic staff members from the WSU Queenstown Campus assisted twelve local schools around the Whittlesea areas". The focus was on critical	CER.pg 2 CER.pg 2 INT. CEC
Responsive curriculum			

contribute towards  
 building business skills  
 and contribute towards RCR:4  
 in the focus of the  
 faculty's research  
 projects and the needs INT.CEC  
 want to focus on  
 subsistence farming for  
 a start and they need INT.CEC  
 funders : DRDAR and  
 DRLAR as well as LED  
 Sections of various local RCR:3  
 have signed a  
 memorandum of  
 understanding for the RCR:3  
 the faculty to  
 benchmark from Fort  
 Cox college on ways of CER  
 yet to be implemented  
 following the  
 development of a INT.RCC  
 develop an App  
 (through financial and  
 non-financial assistance INT.RCC  
 implemented are short  
 courses in  
 Entrepreneurship Skills RCR:3  
 practices and give rural  
 farmers exposure to  
 commercial farming RCR:3  
 have to be equipped on  
 how to deal with  
 existing challenges in RCR:3  
 development of course  
 are hoping that the  
 content will be RCR:3  
 attractive to young  
 farmers; however, some  
 farmers require INT.CEC  
 course will not alleviate  
 the current challenges  
 that small farmers are INT.CEC  
 to creating employment  
 opportunities and  
 addressing the INT.CEC



## Appendix O: Gate-keeper permission from the Dean of Faculty of Economics and Information Technology Systems

  
RHODES UNIVERSITY  
*Where leaders learn*

PARTICIPANT INFORMED CONSENT

INFORMED CONSENT DECLARATION

Name with held for anonymity purposes

Project Title: Application of systems theory for curriculum analysis on emerging sustainability practices at the Faculty of Economics and Information Technology Systems.

*Mrs. Konwaba Klishi* from the Department of Education at Rhodes University requests your permission to participate in the above-mentioned research project and also to be linked on your Development Economics (ECO 22Q2) wiseApp page for purposes of observation (hearing the voice: discussion forum).

The nature and the purpose of the research project and of this informed consent declaration have been explained to me in a language that I understand.

I am aware that:

1. The purpose of the research project is to recognize how sustainability practices reflected on the curriculum of the Faculty of Economics and Information Technology Systems?
2. The Rhodes University has given ethical clearance to this research project and I have seen/ may request to see the clearance certificate.
3. By participating in this research project I will be contributing towards reflecting sustainability practices that exist in the Faculty of Economics and Information Technology Systems.
4. I will not be compensated for participating in the research, and there will be no expenses incurred during on my side.



The research will entail the following data generation methods:

- Semi-structured interviews: I will interview 7 lecturers from various qualifications (3 post-graduate qualification and 4 undergraduate qualifications).
- Observations: In a consent letter requesting participation in the research, I will request to observe 7 lecturers in the sample as well as the one quarterly meeting of the faculty community engagement committee as well as one quarterly meeting of the faculty research committee.
- Document Analysis: Course learner guides of the 7 will be analyzed as well as 1 community engagement report and 1 research committee report.
- The potential participants are my colleagues as I am a lecturer in the Faculty of Economics and Information Technology Systems as well as a member of both the research and community engagement committees.
- All potential participants will be under no obligation to participate as they are free to withdraw at any stage of the research.

I am hereby seeking your consent to engage with various academic staff in order to assist me in reaching a decision, I have attached to this letter:

- (a) A copy of an ethical clearance certificate issued by the University
- (b) A copy the research instruments which I intend using in my research

Should you require any further information, please do not hesitate to contact me or my supervisor. Our contact details are as follows:

(Ph.: 076 165 7815/e-mail: [kklish@wsu.ac.za](mailto:kklish@wsu.ac.za))

Upon completion of the study, I undertake to provide you with a feedback

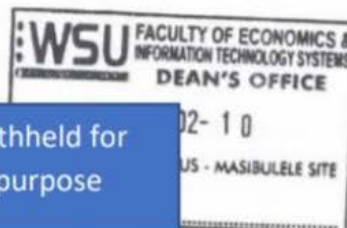
Your permission to conduct this study will be greatly appreciated.

Yours sincerely,

Signature   
Name *Konwisa Kwet (mks)*


*Approved*

Signatures withheld for  
anonymity purpose



Rhodes University, Research Office, Ethics  
Ethics Coordinator: [ethics-committee@ru.ac.za](mailto:ethics-committee@ru.ac.za)  
t: +27 (0) 46 603 7727 f: +27 (0) 86 616 7707  
Room 220, Main Admin Building, Drosty Road, Grahamstown, 6139

## Appendix P: Participant informed consent declaration



**RHODES UNIVERSITY**  
*Where leaders learn*

**PARTICIPANT INFORMED CONSENT**

**INFORMED CONSENT DECLARATION**

Name with held for anonymity purposes

Project Title: Application of systems theory for curriculum analysis on emerging sustainability practices at the Faculty of Economics and Information Technology Systems.

*Mrs. Konwaba Klishi* from the Department of Education at Rhodes University requests your permission to participate in the above-mentioned research project and also to be linked on your Development Economics (ECO 22Q2) wiseApp page for purposes of observation (hearing the voice: discussion forum).

The nature and the purpose of the research project and of this informed consent declaration have been explained to me in a language that I understand.

I am aware that:

1. The purpose of the research project is to recognize how sustainability practices reflected on the curriculum of the Faculty of Economics and Information Technology Systems?
2. The Rhodes University has given ethical clearance to this research project and I have seen/ may request to see the clearance certificate.
3. By participating in this research project I will be contributing towards reflecting sustainability practices that exist in the Faculty of Economics and Information Technology Systems.
4. I will not be compensated for participating in the research, and there will be no expenses incurred during on my side.



5. The researcher intends publishing the research results in the form of research thesis on library shelf and electronically as well as in the research journals.
6. Confidentiality and anonymity of records will be maintained and my name and identity will not be revealed to anyone who has not been involved in the conduct of the research.
7. I will receive feedback/will receive feedback in the form of a report regarding the results obtained during the study.

Any further questions that I might have concerning the research or my participation will be answered by Konwaba Klishi, contact details: [kklish@wsu.ac.za](mailto:kklish@wsu.ac.za).

By signing this informed consent declaration I am not waiving any legal claims, rights or remedies.

A copy of this informed consent declaration will be given to me, and the original will be kept on record.

Name withheld for  
anonymity purpose

I have read the above information / confirm that the above information has been explained to me in a language that I understand and I am aware of this document's contents. I have asked all questions that I wished to ask and these have been answered to my satisfaction. I fully understand what is expected of me during the research.

I have not been pressurized in any way and I voluntarily agree to participate in the above-mentioned project.

Signatures withheld for anonymity purpose

Participants signature

Witness

Date

09/11/2022

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