The forestry sector of South Africa supporting the achievement of SDG 15

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Conceptual, Efficiency, Forestry, Plantations, South Africa, Sustainable Development Goals.

Abstract

Orientation: *The National Framework for Sustainable Growth South Africa was introduced to re-orientate South Africa's development path in a more sustainable direction. The South African Forestry Industry is discussed detailing commitment to ensure plantation forest establishment and management within the most socio-economically and environmentally beneficial way possible.*

Research purpose*: The South African Forestry Industry is discussed detailing commitment to ensure plantation forest establishment and management within the most socio-economically and environmentally beneficial way possible.*

Motivation for the study: *By identifying the way natural resources are managed, the sustainability of the forestry industry, and innovatively assisting people who directly depend upon this industry to work in safety and live under conditions of acceptable quality can be assured.*

Research design, approach and method: *The conceptual study focusses on the Sustainable Development goals as formulated by the United Nations and specifically SDG 15. The National Framework for Sustainable Growth South Africa was introduced to re-orientate South Africa's development path in a more sustainable direction.*

Main findings *Although many different methods and approaches monitoring and verifying the sustainability of wood are acknowledged, verification from the Forest Stewardship Council is the preferred certification for the World Forestry Organization. The community's increased control over forests will ensure that the UN Voluntary Positive impacts of sustainable forest management (SDG 15) will be followed.*

Practical/managerial implications: *Industry is discussed detailing commitment to ensure plantation forest establishment and management within the most socio-economically and environmentally beneficial way possible. By identifying the way natural resources are managed, the sustainability of the forestry industry, and innovatively assisting people who directly depend upon this industry to work in safety and live under conditions of acceptable quality can be assured*

Contribution/value-add: *Although many different methods and approaches monitoring and verifying the sustainability of wood are acknowledged, verification from the Forest Stewardship Council is the preferred certification for the World Forestry Organization. The community's increased control over forests will ensure that the UN Voluntary Positive impacts of sustainable forest management (SDG 15) will be followed.*

1. Introduction

The international Sustainable Development Goals (SDGs) were developed and agreed upon by 193 countries to form The Agenda 2030 for Sustainable Development (Pedersen, 2018). At its heart are the seventeen SDGs which comprise an urgent call for action by all countries in a global partnership.

"South Africa aspires to be a sustainable, economically prosperous and self-reliant nation state that safeguards its democracy by meeting the fundamental human needs of its people, by managing its limited ecological resources responsibly for current and future generations, and by advancing efficient and effective integrated planning and governance through national, regional and global collaboration" according to the Department of Forestry, Fisheries and Environment's Green Economy focus area (Department of Forestry, Fisheries and Environment (DFFE), 2022). This ruling results in the developmental route encompassing strategies for greater sustainable and creative use of resources focussing on the integration of "social, economic, ecological and governance systems". African countries

not only embraced the 2030 Agenda, but also stanchly headed towards implementation of the African Union Agenda 2063. According to the African Union (AU: 2021), both these agreements are visions for building a more affluent Africa in 50 years.

The impact of COVID-19 pandemic caused an impediment for sustainable development world-wide (Bronkhorst, 2020). The increased poverty rates and unemployment following the outbreak of the COVID-19 pandemic, negatively impacted the three broad scopes of sustainable development, i.e. economic, social and environmental.

Although it is imperative for countries to have a SDGs coordinating unit, "out of 54 African countries, 80% have a lead unit responsible for SDGs implementation" (Africa SDG Index and Dashboard Report, 2020). In Southern Africa only Mozambique, São Tomé and Príncipe do not have a SDGs unit Africa SDG Index and Dashboard Report. 2020.

Fifty-two African countries, based on 97 indicators across all 17 goals, were ranked by the 2020 Africa SDG Index. This index's score indicates a country's position between the worst (0) and best (100) outcomes. Figure 1 below indicates the top 10 of 52 countries, together with their SDG score:

Figure 1: Top ten of 52 countries

Rank	Country	Score	Rank	Country	Score
1	Tunisia	67.10	6	Egypt	65.44
2	Mauritius	66.79	7	Botswana	63.93
3	Morocco	66.3	8	Ghana	62.69
4	Algeria	65.9	9	South Africa	62.20
5	Cabo Verde	65.59	10	São Tomé and Príncipe	61.61

Source: Africa SDG Index and Dashboard Report (2020)

However, according to this African report Africa (SDG Index and Dashboard Report, 2020) even the upper ten countries are still nonetheless 35% away from achieving the SDGs by 2030. The individual SDI scores have advanced very little since 2015.

1.1. Environmental goals

An analysis by Department of Performance Monitoring and Evaluation (DPME) indicates a convergence between South Africa's National Development Plan (NDP) and the SDGs. Close to 74% of 8 the SDG targets are "directly addressed by the NDP, whereas sectoral programmes address 19% of the remaining targets" (DPME, 2022). In 2015 the Millennium Development Goals (MDG) for South Africa was launched in which MDG 7 is built specifically on SDG 14 and SDG 15.

1.2. Sustainability Goal no 15

"Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss" (United Nations: Department of Economic and Social Affairs Sustainable Development, 2015). The forest sector itself can be grouped to SDG 15. This directive will include "Promote Sustainable Use of Terrestrial Ecosystems; Sustainably Manage Forests; Combat Desertification; Halt and Reverse Land Degradation, and Halt Biodiversity Loss". Target 15.2 states that "By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests, and substantially increase afforestation and reforestation globally". SDG 15 is directly related to other SDGs.

This paper is a conceptual study directed at the forestry sector of South Africa (timber production, manufacturing of forest products, and tourism) supporting the achievement of SDG 15.

2. **Research methodology**

2.1. Research philosophy

The Interpretivist research philosophy was considered suitable for this study with the main aim being analysis without making predictions. This approach clarifies the important aspects within a specific context that of SDG 15 in the forestry sector and, furthermore, offers more than one reality (Bronkhorst, 2020).

2.2 Research design

The research design is attentive to the specific situation, therefore, within the complex environment of this particular study, a case study research design was selected. The use of one industry results in the provision of detailed information in which the maximum content proved perfect for transferring to alternative studies (Welman & Kruger, 2004). The context of this study was the forestry industry in SA and, in particular, the sustainable goals within the UN's SDG 15, with the aim of not only meeting the set requirements, but also the achievement of the goals (Cresswell. 2014). An important parameter was that the chosen case had to be a large impact player supporting the achievement of SDG15 within South Africa.

2.3. Research approach

A qualitative research approach (Cresswell, 2014) wherein the data collecting process is specifically perceptible was used. Consequently, the accumulated data is not quantifiable, because secondary data was observed (not measured) and then interpreted.

2.4. Document analysis

Heterogeneous data was not produced by the research, therefore, documents that already existed were applied, as recommended by Bryman, Bell, Hirschson, Dos Santos, du Toit, Masenge, Van Aardt, and Wagner (2018). The documents were selected with the following aims in mind: accessibility for viewing; relevance to the research topic; collecting and summarising physical data through observation. The quality of the documents used in this research study was evaluated against the four criteria that are applicable to secondary data, as set out by Bryman et al (2018). The principles of secondary data that apply to document analysis are authenticity – the evidence should be unaffected and indisputable; credibility – the evidence should have no inaccuracy and spin; representativeness – the evidence should be distinctive in its kind; and meaning – the evidence should be unblemished and logical.

2.5. Data analysis and interpretation of results

In qualitative research, the data processing is performed manually because the secondary data is collected (Fox & Bayat, 2013).

2.6. Quality of the data

The increasing of rigour in the research process results in credible findings (Struwig & Stead, 2013). However, in a qualitative study (Cresswell, 2014) it is not possible to be objective and, thus, subjectivity is a major strength because it is important for the researcher to fully understand the context of the secondary data (Struwig & Stead, 2013). In this study: Persistent Observation – a constant comparison drawn between the different sets of data; and Triangulation (DFFE, 2022), comprise the most positive method of collecting information regarding events and involves correlating new data with the data already retrieved; Inductive reasoning is also applied (logic that stems from specific facts but is drawn to believable generalisations).

3. Results and discussion

3.1. South Africa

South Africa is a medium-sized country with a culturally diverse population with the economy amongst the largest in Africa and classified as an upper-middle-income country (Bronkhorst, 2020). According to the late Minister Jackson Mthembu, the Minister in the Presidency, "the three dimensions of sustainable development – economic, social and environmental, are profoundly interlinked". This fact is

emphasised by the practice of economic growth without social inclusion or at the expense of the natural environment, resulting in the protection of the environment, at the outlay of the most vulnerable groups and individuals (Sustainable Development Goals (SDG) Country Report, 2019).

The National Framework for Sustainable Development (NFSD) was introduced in South Africa with the main purpose being "to enunciate South Africa's national vision for sustainable development and indicate strategic interventions to re-orientate South Africa's development path in a more sustainable direction" (DEAT, 2015). This framework propositions both the strategic priority areas as well as the implementation measures needed to enable prevailing accomplishments of government and its social partners according to the National Framework for Sustainable Development (NFSD) Department of Forestry, Fisheries and Environment (DFFE), 2022. Therefore, to strengthen, advance and realign the inter-related SDGs, governance systems will be capacitated in an achievable economy for society as well as for the environment. However, this growth will be within the following conditions:

efficient and sustainable use of natural resources.

socio-economic systems within the eco-systems; and

basic human needs being met provided the required long-term survival of resources is not destroyed for short term gain. (DFFE, 2022)

3.2. Forestry

Throughout centuries, forests have contributed towards healthy living and well-being for all people, resulting in the known benefits prophesised by countries such as Japan and South-Korea. These health benefits are mainly created by the recreational access to urban forests, known as "forest bathing", through which both physical and mental health benefits are achieved. The populations of rural areas rely on the medicinal value of forest plants because it is not always easy for them to access more conventional health services (Bronkhorst, 2020).

During 2018, "The State of the World's Forests 2018" declaration was accepted after governments worldwide took decisive action in 2015 by adopting the 2030 Agenda for Sustainable Development, as discussed at the United Nations Summit in 2015. This Agenda, together with the SDGs, became the principal framework for sustainable development. The Food and Agriculture Organization (FAO) of the United Nations (UN) is always exploring alternative ways that forests and trees, together with the people using and managing them, can contribute towards creating sustainable development (Da Silva, 2018).

According to the objectives of the South African Forestry Environmental Guidelines for Forest Plantations (Forestry South Africa, 2019), this practice is a statutory obligation, which must be complied with, stating that: "The South African Forestry Industry is committed to ensure that: plantation forest establishment and management take place in the most socio-economically and environmentally acceptable way, natural resources are managed in a manner which will ensure the sustainability of the forestry, and enterprise people on whom the industry depends may work in safety and live under conditions of acceptable quality" (Forestry South Africa, 2019).

People live in close proximity to, or sometimes just outside of, forests which are seen as a vital source of income, living and security for rural populations (Traditions in Tree Management, 2018). According to the FAO in the USA, these people are providing for themselves with an "income-generating activity in both the formal and informal sectors" (Da Silva, 2018). A problem that is experienced globally, although more so in South Africa, is the associated governance and rights, such as land claims, in remote areas. The inhabitants incline to have stronger occupancy rights over the agricultural land rather than forests, mainly due to the complex history of government control.

African populations are the most reliant on wood fuel (63%), whereby the dependency on fuelwood continues to be one of the most affordable and reliable energy sources as countries move through the process of industrialisation.

Over the last 25 years, forest management, as far as soil and water conservation are concerned, has increased globally. There is a positive universal trend in protecting forests, with the exception of Africa and South America. This fact is evident through the large-scale loss of vast, contiguous tropical forests, together with dwindling local rainfall. The World Forestry Organisation emphasises that forest areas act

as a natural infrastructure by providing deterrents against natural disasters and/or upholding a high-quality water supply (Da Silva, 2018).

The Department of Forestry, Fisheries and Environment (DFFE) directive Department of Forestry, Fisheries and Environment (DFFE), is resultant upon a range of legislation, including National Forests Act (1998) (DFFE, 2021). Although the aim of these directives is to advance and enable the application of the regulations to ensure the efficient management of forests, together with the sustainable use and protection of land and water, the specific objectives of the Department of Forestry are identified in Table 2 below:

Table 2: Objectives

Objectives:	Achieved:
to safeguard, preserve, protect, retrieve and restore depleted and tainted natural resources over the medium term by	the reinstating and rehabilitation of 2 550 hectares of state plantations. the restoring and naturalising of 48 900 hectares of re-established indigenous forests and woodlands and the assimilation of 900 hectares of state-owned indigenous forests and woodlands. executing three projects to sustain the renewal of irrigation schemes.
to confirm the efficient application and implementation of the climate change mitigation and adaptation plan for Forestry, Fisheries and Environment	achieved by September 2021. operations necessary for following the strategic framework implemented

Source: (Bronkhorst, 2020)

According to the Department of Forestry, Fisheries and Environment, the South African forestry industry is categorised as: plantation forestry, wood chip, sawmilling, wood charcoal, timber board, mining timber, paper (newsprint) paper (Kraft liner), poles and treated poles (DFFE, 2021). Forestry wood-based products are classified according to the Harmonized System (HS). The HS is a language used universally as a code for goods. This crucial instrument for international trade, is governed by the International Convention on the Harmonized Commodity Description and Coding System (World Customs Organizations, 2018).

Seven percent of SA's demographic area, close to nine million hectares, is forested Department of Forestry, Fisheries and Environment (DFFE, 2021). Forests are crucial sources for their biological diversity as well as their aesthetic and spiritual benefits which fall into two broad groups: (Coalition for Rainforests, 2017)

An identified market: wood products (industrial processing of wood and for fuel), non-timber products (fruit, plants, bark, fibres and wildlife) and products for tourism and recreation.

Resources not being consumed, but valued by people (spiritual and religious values; protection of water resources and the conservation of biological diversity) (Forests, Innovation of Resources, 2017).

The South African Forestry industry is primarily classified into three categories: indigenous/natural forests, woodlands/savannahs and commercial forests/plantations. According to the DFFE (2022) natural forests usually consist of vegetation, multidimensional, but vanquished by trees. The indigenous forests cover approximately a half million hectare in SA and are mostly found on private property or land under communal tenure and are not used commercially (Bronkhorst, 2020). The woodlands or savannahs comprise a major forest resource in SA which is recognised as the most accessible forest resource for poor communities (DFFE, 2022).

Plantation forestry comprises sections of planted trees in which the trees in each section are of the same species, age and planted at a specific spacing (Bronkhorst, 2020). In SA wood is an important raw material contributing to many industries such as mining, the construction of houses and commercial buildings, poles for electricity distribution and telecommunications, the manufacture of furniture, pulp and paper, and energy production.

Regardless of the relatively small percentage and hectares (ha) that SA's commercial plantation forestry covers, it produces 2.8 million tons of pulp (1.63% of global supply), 2.1 million tons of paper (0.76% of global supply), and 1.3 million tons of sawn timber (0.3% of annual world supply) (Bronkhorst, 2020).

A forest development strategy is followed, resulting in the indigenous forests never being cut, while the country uses plantation forests as a source of timber. This practice has resulted in SA being almost totally self-sufficient for wood-based products with the industry planting 360 000 trees per day, totalling 90 million trees a year (Forestry South Africa, 2019). The norm used in the forestry of unplanted plantation areas is 3.5% to 5% (Department of Agriculture, Forestry and Fisheries, 2019). However, the temporary unplanted areas are below 3% of the total plantation areas (Forestry South Africa, 2019).

As SA is not a naturally forest-rich country, a very small land area is covered by indigenous natural forests. As indicated over the years, and formulated in the then Minister of Water Affairs and Forestry's White Paper: *Sustainable Forest Development in South Africa,* (2014) the economic significance of commercial forestry has increased, which can be attributed to a constellation of factors:

(i) The growth aspects of the industry are excellent.

(ii) There are strong diversification possibilities in the wood industry.

(iii)SA is a world leader in pulp and paper technology, adding to the competitive advantage (Bronkhorst, 2020).

Forestry is such a key driver of the South African economy, afforestation is a priority in rural areas to create viable opportunities for employment and economic activity Department of Forestry, Fisheries and Environment (DFFE), 2022. . The South African forestry sector is primarily classified into three categories: indigenous/natural forests, woodlands/savannahs and commercial forests/plantations. As indicated above, South Africa's forestry industry is categorised as: plantation forestry, wood chip, sawmilling, wood charcoal, timber board, mining timber, paper (newsprint), paper (Kraft liner), poles and treated poles (Bronkhorst, 2020).

South Africa forestry prides itself on the quality of the products being delivered: "commercial forests being managed on a saw-log regeneration basis" Merensky (Pty) Ltd. (2020). This claim is supported by acknowledging that all the lumber carries the prestigious FSC certification, the benchmark needed to differentiate sustainably-sourced wood products, thus, resulting in the immediate recognition of the availability of superior export products.

There are many different methods and approaches aimed at monitoring and verifying the sustainability of wood, measuring the volume, and identifying sources, as well as whether or not the global level is feasible. However, verification from the Forest Stewardship Council (FSC) is the preferred certification for the World Forestry Organization Forestry Stewardship Council (FSC). (2019). The FSC is an independent, non-governmental, not-for-profit organisation established to promote the responsible management of the world's forests. The FSC logo found on a wood or wood-based product, indicates that it has been processed according to the standards of the FSC, with the assurance that it is cultivated, or contains wood that comes from FSC certified forests or plantations, or from 'post-consumer waste' Forestry Stewardship Council (FSC). (2019). Consultation on a continuous basis between the FSC, businesses, as well as Non-Governmental Organisations (NGOs), workers in the industry, the communities and indigenous people, develops and strengthens forest management and the wood supply chain of custody standards. Through the continuous adaptation to individual countries' national standards of legal, social and geographical surroundings, FSC's international forest management standards are developed (Bronkhorst, 2020).

4. Conclusion and recommendations

41. Conclusions

Baumgartner (2019) postulates that "well managed forests can have a positive impact on biodiversity (SDG 15), create income to fight poverty (SDG 1), provide wild fruit and game to fight hunger (SDG 2), provide medical plants (SDG 3), provide freshwater for drinking and irrigation (SDG 6), and capture and store carbon (SDG 13)". There is, however, the possibility of involuntary concerns as well as aimed clashes between usage of forest-based goods and services. It is well-known that forest-based products lead to lower greenhouse-gas emission. This practice is in line with the substitution of fossil and non-renewable resources. (Baumgartner, 2019) remises that there are trade-offs evident between this substitution and biodiversity. This fact is evident in the expansion of agricultural as well as the increasing usage of fuel wood, resulting in the extraction of timber, being main drivers of deforestation.

Deforestation may result in not achieving the SDGs. According to Baumgartner (2019) "regions can face an increased vulnerability to extreme weather events (SDG 1), there can be a loss of rainfall and crop pollinators (SDG 2), more respiratory illnesses can be caused by forest fires (SDG 3), there can be faster sedimentation of hydroelectric dams (SDG 7), there can be a higher risk of damages from landslides and floods (SDG 9), or there can be a loss of coastal fisheries habitat (SDG 14)". One possibility is to increase the community's control over forests. This practice will result in organisations, as well as investors, following the UN Voluntary Positive impacts of sustainable forest management (SDG 15). The governance of the land as well as possible aid in development and improvement of land, is an important consideration when forests are a fixed resource.

According to SDG 15, it is important to not only sustainably manage forests but also reverse "land degradation and halt biodiversity loss" within the joined land-use management. Unfortunately, this protection of biodiversity may lead directly and indirectly to a decrease in average household incomes. Therefore, such defensive measures ought to provide a perspective to identify the trade-off within SDG 15 when planned, as well as the implementation, of forest-related policies. To obtain societies' sustainable forest management is non-negotiable – as indicated in SDG 15, target 15.2 requires sustainable forest management achieved by 2020. Unfortunately, this requirement is not viable practically in all forestation areas in South Africa.

Due to the conflict of obstacles in both regional and national processes to reach the SDGs, Baumgartner (2019) indicates that not being able to anticipate the trade-offs will result in problem-shifting and even amplify the challenges facing sustainable development agendas. Baumgartner (2019) further postulates in the "worst case, incoherent strategies could put many of the SDGs out of reach by 2030". To overcome the possible identified problems, the associated effects must be identified and even assessed in an inclusive manner.

4.2. Recommendation

Indication of much stronger, efficient connections between developments within the forest sector is needed. One possible solution is the usage of a systematic integrated assessment, applied from a macro-level standpoint taking a stance on the quantification of possible outcomes. This approach can be challenging, especially when activities and strategies of individual forest actors have to be assessed. Baumgartner (2019) operationalised the notion of second-order sustainability performance (SDG 15) for individual companies. This concept can be transferred to forestry in future research.

4.3 Limitations of the study

As with any other research project, this study has limitations. Two broad areas of limitations are identified in the study as a whole, being issues related to the research methodology and the interpretation of the secondary data. However, the findings of this study are distinctively valuable, although viewed within the realm of the limitations of the study. The study focussed only on Sustainable Development Goal 15. The findings for this SDG are only applicable in South Africa and specifically the Forestry Industry

References

Africa SDG Index and Dashboard Report. 2020.
https://sdgcafrica.org/wp-content/uploads/2020/10/2020_africa_index_and_dashboards.pdf.Accessed 26/02/2022.
African Union https://au.int/. Accessed 03/03/2022.
Babbie, E. & Mouton, J. 2014. The Practice of Social Research. 15th Edition, Cape Town: Oxford University Press.
Baumgartner, J. 2019. Sustainable Development Goals and the Forest Sector – A Complex Relationship.
Bronkhorst, S. 2020. A Decision Support Model for export opportunities in the South African. hardwood industry. University of Johannesburg.
Bryman, A., Bell, E., Hirschson, P., Dos Santos, A., du Toit, J., Masenge, A., Van Aardt, I. & Wagner, C. 2018. *Research Methodology Business and Management Contexts.* 2nd Edition. Cape Town: Oxford University Press.
Coalition for Rainforests. 2017. Chair of Coalition for Rainforest Nations reflects on the state of climate negotiations and priorities for COP23. Site Map. Available from: https://cdkn.org/2017/07/opinion-chair-of-coalition-for-rainforest-nations-reflects-on-the-state-of-climate-negotiations-and-priorities-for-cop23/?loclang=en_gb. Accessed 03/03/2022.

Creswell, J. W. 2014. Research design: Qualitative, Quantitative, and Mixed Methods Approaches. 4th Edition, Los Angeles: CA: Sage.
Da Silva, J. G. 2018. The State of the World's Forests 2018 (SOFO 2018). Site Map. Available from:
http://www.fao.org/state-of-forests/en/. Accessed 04/11/2020.
Department of Environmental Affairs and Tourism (DEAT). 2015.
https://www.gov.za/sites/default/files/gcis_document/201409/nationalframeworkforsustainabledevelopmenta0.pdf. Accessed 19/03/2022.
Department of Forestry, Fisheries and Environment (DFFE). 2021.
https://www.dffe.gov.za/projectsprogrammes/greeneconomy/about#:~:text=The%20country's%20sustainable%20development%20vision,its%20people%2C%20by%20managing%20its. Accessed 26/02/2022.
Department of Forestry, Fisheries and Environment (DFFE), 2022.
https://www.dffe.gov.za/documents/strategicdocuments/nfsd. Accessed 03/03/2022.
Department of Performance Monitoring and Evaluation (DPME). 2021.
https://evaluations.dpme.gov.za/images/gallery/Guideline%202.2.15%20Economic%20Guideline%20%2014%2003%2020%20docx%20%20-%20Copy.pdf. Accessed 01/03/2022.
Forestry South Africa. 2019. Site Map. Available from: http://www.forestry.co.za. Accessed 04/04/2022.
Forestry Stewardship Council (FSC). 2019. Site Map. Available from: https://fsc.org/en. Accessed 04/04/2022.
Fox, W. & Bayat, M. S. 2013. A Guide to Managing Research, 1st Edition. Cape Town: Juta
Merensky (Pty) Ltd. 2020. Site Map. Available from: https://merenskytimber.com/?gclid=EAIaIQobChMIj-zDn4_o6gIVUrTVCh2PcAAQEAAYASAAEgIsJ_D_BwE. Accessed 01/05/2020
Pedersen. C. S. 2018. The UN Sustainable Development Goals (SDGs) are a great gift to business! Science Direct., 2018.
Stats SA, 2021. https://stats.unctad.org/Dgff2016/planet/goal15/target_15_9.html. Accessed 21/03/2022
Struwig, F. W. & Stead, G. B. 2013. Research Planning, Designing and Reporting. 2nd Edition. Cape Town: Pearson.
Sustainable Development Goals (SDG) Country Report (2019) – South Africa.
http://www.statssa.gov.za/MDG/SDGs_Country_Report_2019_South_Africa.pdf. Accessed 03/02/2022.
Traditions in Tree Management. (2018). Site Map. Available from:
http://www.fao.org/3/x5861e/x5861e04.htm#1.1%20The%20Importance%20of%20Trees. Accessed 02/02/2018.
United Nations: Department of Economic and Social Affairs Sustainable Development. Goal 15 | Department of Economic and Social Affairs (un.org). Accessed 01/03/2022.
Welman, J. C. & Kruger, S. J. 2004. Research Methodology: for the Business and Administrative Sciences. 2nd Edition. Cape Town: Oxford University Press.
World Customs Organizations. 2018. Site Map. Available from:
http://www.wcoomd.org/en/topics/nomenclature/overview/what-is-the-harmonized-system.aspx.Accessed 05/05/2018.