



WATER

ENERGY

SUSTAINABILITY

**SECTOR
SKILLS
PLAN**

2021/22



ENERGY AND WATER SECTOR EDUCATION AND TRAINING AUTHORITY



ENERGY AND WATER SECTOR EDUCATION AND TRAINING AUTHORITY

LIST OF ACRONYMS

4IR	The Fourth Industrial Revolution
AET	Adult Education and Training
ATR	Annual Training Report
CESM	Classification of Educational Subject Matter
CMA	Catchment Management Agency
CSP	Concentrated Solar Power
DHET	Department of Higher Education and Training
DOE	Department of Energy
DWS	Department of Water and Sanitation
ECSA	Engineering Council of South Africa
EW	Energy and Water
GCIS	Government Communication and Information Systems
GDP	Gross Domestic Product
IEP	Integrated Energy Plan
MIS	Management Information System
IPAP	Industrial Policy Action Plan
IPP	Independent Power Producer
MW	Megawatts
NDP	National Development Plan
NEET	Not in Employment, Education or Training
NQF	National Qualifications Framework
NSDP	National Skills Development Plan
NWRS	National Water Resource Strategy
OFO	Organising Framework for Occupations
OIHD	Occupations in High Demand
PIVOTAL	Professional, Vocational, Technical and Academic Learning (Programmes)
PSET	Post-School Education and Training
PV	Photovoltaic
QCTO	Quality Council for Trades and Occupations
QLFS	Quarterly Labour Force Survey
RPL	Recognition of Prior Learning
SETA	Sector Education and Training Authority
SIPs	Strategic Integrated Projects
SOE	State Owned Entity
SPOI	Sectoral Priority Occupations and Interventions
TVET	Technical Vocational Education and Training
WSP	Workplace Skills Plan





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Foreword

The Energy and Water Sector Education and Training Authority (EWSETA) presents the first update of the five-year Sector Skills Plan (SSP) currently in implementation. The SSP has been developed through empirical research in order to more effectively support evidence-based decision-making processes in favour of the energy and water (EW) sector.

The SSP situates skills development imperatives in support of a developing economy which encompasses key role players and various constituents geared towards the realisation of a common directive; that is, to realise the overarching vision articulated by the National Development Plan (NDP). The National Skills Development Plan (NSDP), on the other hand, serves as a guiding roadmap to achieving intended outcomes in response to the ambitious vision of the NDP whilst continually supporting national strategies and plans.

Furthermore, the EWSETA SSP demonstrates its alignment to national strategies and plans through skills planning and implementation activities designed to enhance effective evidence-based decision-making. Subsequently, it is thus the intention of the EWSETA to achieve successful implementation of EWSETA priority actions which invariably serve to achieve outcomes enunciated through the NSDP.

In so doing, the EWSETA will continue its trajectory towards the realisation of priorities to ultimately achieve skills development imperatives. It is for this reason the EWSETA remains a relevant and necessary component of the skills development landscape as proviso to collective and forward progression of the South African workforce.

APPROVED BY:



Chief Executive Officer (Acting):
Ms Mpho Mookapele



EWSETA Board Chairperson:
Dr. Limakatso Moorosi

Date: 31 August 2020

Date: 31 August 2020



Executive Summary

1. INTRODUCTION AND BACKGROUND

The EWSETA updated this Sector Skills Plan (SSP) in accordance with SSP guidelines and prescripts as prescribed by the Department of Higher Education and Training (DHET). It is envisaged that this SSP will continue to serve as an evidence-based document developed for the primary purpose of informing evidence-based decision-making in favour of achieving skills development imperatives.

2. RESEARCH PROCESS AND METHODS

Central to its development, this SSP update was prepared by way of evidence-based research, which included: (1) the collection of quantitative data (i.e. collected through workplace skills plans (WSPs) submitted by sector organisations; (2) qualitative research in the form of in-depth interviews; (3) labour market intelligence surveys to gain deeper insight into hard-to-fill vacancies (HTFVs) and how COVID-19 may influence skill needs; and (4) desktop research to acquire and analyse secondary data derived from numerous credible sources. The research topics were identified in line with the EWSETA's broad research themes. Even though evaluative studies are still underway, the data collected through research has nonetheless served as input into this SSP. Analyses of various datasets (primary and secondary) culminating in insightful synthesis of data and information enable more effective, evidence-based decision-making.

3. SECTOR PROFILE

The energy and water (EW) sector is made up of 15 subsectors. According to data sources, in 2019/20 there were 2,495 organisations registered with the EWSETA, of which 2,064 (82,73%) organisations were registered in energy and 431 (17,27%) registered in the water sector. Project management, maintenance and operation of electrical generation, transmission and distribution, plants, networks

and systems represents the largest single subsector, with 22,24% (555) organisations registered, closely followed by generation of energy representing 18,96% (473) of total registered organisations in 2019/20. However, during 2018/19 there were 2,367 organisations registered with the EWSETA; thus, there has been an overall increase of 128 organisations recorded, representing a 5,41% increase year-on-year.

3.1 Employer Profile

According to EWSETA Workplace Skills Plan (WSP) submissions in 2020, the employer profile with respect to size is made up of approximately 67% small organisations, followed by medium (22%) and large (11%). This trend is relatively similar to the previous year's WSP submissions, which shows the majority (approximately two thirds) of submitting firms being small entities. Furthermore, the largest proportion (45,85%) of organisations are based in Gauteng Province.

3.2 Labour Market Profile

- According to WSP data, just under one third of the workforce constituted youth workers during 2020 (32,09%) where more than one in five were above the age of 50.
- Male workers continued to represent the majority of the workforce (66,34%) in 2020. It is particularly interesting to note this trend across OFO major groups 1, 2, 3 and 5 (roughly 64%-69% on average) representing management, professional and technical occupations, and even more apparent across groups 6, 7 and 8.
- Furthermore, male workers continued to represent most management level occupations (Major Group 1) across WSP-submitting firms into 2020; however, this trend has been steadily declining from about 82% and 74% in energy and water sectors respectively in 2016, to around 62% and 68% in 2020.



4. KEY SKILLS CHANGE DRIVERS

- The typical major change drivers identified continue to be reflected in this SSP update, such as the fourth industrial revolution (4IR), technological advancements/changes, economic affairs, climate change, and water scarcity. However, the invasive and damaging intrusion of COVID-19, of which the full impact is yet to be realised, has made a significant impression on the list of key change drivers.
- The EWSETA continues to support national strategies and plans through its planning and implementation activities as further explored in Chapter 2 of this SSP update.

5. OCCUPATIONAL SHORTAGES AND SKILLS GAPS

- The top 10 HTFVs were identified which included vacancies such as water process controllers and electrical engineers.
- Typical reasons for apparent HTFVs relate d to, for example, lack of relevant qualifications and lack of appropriate experience.
- Skills gaps were identified at major as well as occupational levels where “technical skills” were revealed as the most cited skills gap across WSP-submitting firms.

6. SETA PARTNERSHIPS

- The EWSETA’s existing partnership model was predominantly based on long-term collaboration agreements for the duration of the NSDS III which came to an end in March 2020.
- However, a number of these partnerships are continuing based on work now being covered under the disposition of the NSDP.

7. SETA MONITORING AND EVALUATION (M&E)

The EWSETA continues to monitor critical planning and reporting documents such as Annual Performance Reports (APRs), Annual Operations Plans (AOPs) Annual Reports (ARs), and Quarterly Monitoring Reports (QMRs) as part of the current monitoring practices. With respect to evaluation, the EWSETA periodically



evaluates respective learning programmes in order to ascertain the level of output and related outcomes of interventions in relation to the sector. However, the EWSETA is still in the process of developing its formal M&E framework.

8. STRATEGIC SKILLS PRIORITY ACTIONS

In line with the National Skills Development Plan (NSDP), the following priority actions continue to be at the fore of EWSETA planning and implementation activities:

Priority 1	Continue to implement and coordinate research aimed at achieving outputs articulating labour market demand in the sector.
Priority 2	Continue to establish partnerships geared towards planning for and implementing development imperatives designed to meet current and future skill needs.
Priority 3	Continue to implement Recognition of Prior Learning (RPL) programmes to promote formal employee development.
Priority 4	Increase effort with respect to SMME development intended to support expanded employment in a more diverse sector.
Priority 5	Continue to support equity imperatives, especially in key professional and technical occupations.

Priority 6	Establish a formal EWSETA monitoring and evaluation (M&E) framework.
Priority 7	Continue to implement measures to support National Strategies and Plans.

9. CONCLUSION

Priority actions play a critical role in the achievement of outcomes prescribed by the NSDP. Thus, the EWSETA will continue to strive to carry out national prescripts thereby enhancing the energy and water sector workforce through effective skills development mechanisms now and in the future.

APPROVED BY:



Chief Executive Officer (Acting):
Ms Mpho Mookapele

Date: 31 August 2020



EWSETA Board Chairperson::
Dr. Limakatso Moorosi

Date: 31 August 2020



Research Process and Methods

Introduction: Objectives of the Sector Skills Plan (SSP)

The EWSETA Sector Skills Plan (SSP) aims to inform labour market intelligence, determine funding priorities, support employer and national skills planning, identify sectoral priority occupations, and effectively enable evidence-based decision-making. Thus, the EWSETA SSP serves as a roadmap for the EWSETA to the achievement of outcomes contained in the National Skills Development Plan (NSDP) through credible, evidence-based research representative of the energy and water sector.

Research Process and Methodology

Central to its development, this SSP update was prepared by way of evidence-based research, which included the (1) collection of quantitative data (i.e. collected through workplace skills plans (WSPs) submitted by sector organisations,

as well as evaluation studies; (2) qualitative research in the form of in-depth interviews; (3) labour market intelligence survey to gain deeper insight into hard-to-fill vacancies (HTFVs); and (4) desktop research to acquire and analyse secondary data derived from numerous credible sources. The research topics (as seen in the table below) were identified in line with the EWSETA's broad research themes, namely, learning programme evaluations and labour market intelligence-based surveys. Even though the evaluative studies are still underway, the data collected through research has nonetheless served as input into this SSP. Analyses of various datasets (primary and secondary) culminating in insightful synthesis of data and information enable more effective, evidence-based decision-making. The table below provides a description of the nature of research conducted and used to inform the updating of this SSP as follows:

Table 1: Research Process and Methods

Research Project / Topic	Nature of the study	Objectives of the study	Data collection and analysis	Sample size and scope of the study	List of sources and data sets analysed	Timeframe of the study
Tracer Study	Quantitative	<ul style="list-style-type: none"> To determine the destinations of learners who have completed WBL programmes. To understand factors associated with employment/unemployment. To determine the nature of employment of learners who acquired employment in relation to respective WBL programmes. 	<p>Primary data collection:</p> <ul style="list-style-type: none"> Computer assisted telephone interviewing (CATI) system to collect primary data from learners. Only valid, contactable participants were invited to participate in the study to ensure integrity. <p>Secondary data collection:</p> <p>Secondary data sets were acquired and analysed through desktop research</p>	<ul style="list-style-type: none"> Quantitative sample size of 195 contactable apprenticeship learners, and a further 40 contactable learnership learners (sample was provided by the DHET). 	Several secondary data sets were derived from sources such as: StatsSA; National Treasury; Department of Labour; Government Communication and Information System; and others.	12/2018 to 01/2020) (2018/19 to 2019/20)



Research Project / Topic	Nature of the study	Objectives of the study	Data collection and analysis	Sample size and scope of the study	List of sources and data sets analysed	Timeframe of the study
Tracer Study <i>contd.</i>	Quantitative	<ul style="list-style-type: none"> To assess the degree of further study amongst those learners who have completed WBL programmes. The study feeds directly into the Impact Evaluation. 	<p>for use in, for example, analysis of the South African economy.</p> <p>Analysis:</p> <ul style="list-style-type: none"> All collected data sets were first checked for errors and “cleaned” where applicable to ensure validity. Where there were anomalies identified, participants were contacted for further clarification, which further strengthened validity. Analysis tools such as Excel and SPSS were used to analyse data, and conclusions were drawn in line with key findings. 			
Impact Evaluation (learning programme evaluation)	Mixed Methodology	<ul style="list-style-type: none"> To empirically evaluate the effectiveness of EWSETA work-based learning programmes in order to establish how these may influence learning programme outputs and outcomes. This study was still under way at the time of updating of this SSP. 	<p>Primary data collection:</p> <ul style="list-style-type: none"> In-depth interviews conducted with stakeholders (qualitative data). Computer assisted telephone interviewing (CATI) system to collect primary data from stakeholder organisations (quantitative data collection is ongoing). 	<ul style="list-style-type: none"> Qualitative sample of at least 20 stakeholder organisations based on nonprobability sampling using the quasi-randomisation technique. Quantitative sample size of at least 100 contactable organisations. Quantitative sample size of at least 100 contactable learners (from Tracer Study). 	<p>Secondary data collected from Tracer Studies serving as input into the Impact Evaluation;</p> <p>Several secondary data sources such as: StatsSA, National Treasury, Department of Labour, Government Communication and Information System, and others.</p>	03/2020 to 04/21



Research Project / Topic	Nature of the study	Objectives of the study	Data collection and analysis	Sample size and scope of the study	List of sources and data sets analysed	Timeframe of the study
Impact Evaluation (learning programme evaluation) <i>contd.</i>	Mixed Methodology		<p>Secondary data collection:</p> <ul style="list-style-type: none"> • Computer assisted telephone interviewing (CATI) system to collect data from learners (quantitative data collected during Tracer Studies). • Secondary data sets were sourced from internal departments, such as Quarterly Monitoring Reports (QMRs). <p>Analysis:</p> <ul style="list-style-type: none"> • To ensure integrity, reliability and validity of collected data sets, data sets are “cleaned” and then triangulated with internal data sources using software such as Excel and other data analysis tools (where applicable) in order to test for the generalisability of analysed data sets (e.g. QMR completions data). • Furthermore, additional functions such as standard deviation and mean help to identify statistical significance of the quantitative data sets collected. 			



Research Project / Topic	Nature of the study	Objectives of the study	Data collection and analysis	Sample size and scope of the study	List of sources and data sets analysed	Timeframe of the study
Labour Market Intelligence Survey (including COVID-19 related data collection)	Mixed Methodology	<ul style="list-style-type: none"> To collect quantitative data related to Hard-to-Fill Vacancies (HTFVs) in order to gain deeper insight into the nature of HTFVs within the energy and water sector. COVID-19: To collect primary data in relation to COVID-19, and how this pandemic may influence skills development imperatives now and in future. <i>(since the pandemic could not have been anticipated by anyone, COVID-19-related research leverages the Impact Evaluation conducted at the time of updating of this SSP document by including specific questions pertaining to the effects of COVID-19)</i> 	<p>Primary data collection (Quantitative):</p> <ul style="list-style-type: none"> Computer assisted telephone interviewing (CATI) system to collect primary data from employers (quantitative data collection is ongoing). Primary data collection (Qualitative): One-on-one telephonic interviews conducted with stakeholders (20 interviews) Workshop sessions hosted with energy and water sectors to identify key skills-related implications of COVID-19. <p>Secondary data collection:</p> <ul style="list-style-type: none"> Collected quantitative secondary data in the form of WSP/ ATR submissions. Reviewed secondary data sources around COVID-19 <p>Analysis:</p> <ul style="list-style-type: none"> Analysis tools such as Excel and SPSS are used to analyse data All collected data sets were first checked for errors and "cleaned" where applicable to ensure validity. 	<ul style="list-style-type: none"> Quantitative sample size of at least 100 contactable stakeholder organisations using a random sampling technique. 20 Stakeholder interviews (Qualitative) 	<ul style="list-style-type: none"> Primary data collected from stakeholder organisations. Primary data collected from stakeholder organisations. 	03/2020 to 02/2021



Research Project / Topic	Nature of the study	Objectives of the study	Data collection and analysis	Sample size and scope of the study	List of sources and data sets analysed	Timeframe of the study
<p>Labour Market Intelligence Survey (including COVID-19 related data collection) <i>contd.</i></p>	<p>Mixed Methodology</p>		<ul style="list-style-type: none"> • Functions such as “Cronbach’s Alpha” are used to test consistencies and reliability. Where necessary, the “Bootstrap Method” is also introduced (e.g. as was the case in the EWSETA baseline impact study concluded in early 2019) in order to verify or validate the data sets where certain anomalies may have been observed. • Functions such as “vlookup” where used to address missing data such as provincial location of learners and/ or registered companies. This served to strengthen the integrity of data sets utilised. • Functions such as standard deviation and mean help to identify statistical significance of the quantitative data sets collected. Additional functions such as analysing “minimum”, “maximum” and “missing” values also assist with error detection. • A sample size calculator is used to help avoid sampling errors. 			



Research Project / Topic	Nature of the study	Objectives of the study	Data collection and analysis	Sample size and scope of the study	List of sources and data sets analysed	Timeframe of the study
Desktop Research	n/a	<ul style="list-style-type: none"> To collect and reconcile latest available data/information pertaining to labour market intelligence. To enhance and/or corroborate key findings of each chapter of the EWSETA SSP where applicable. To supplement data collected pertaining to COVID-19 and related implications across relevant chapters of the SSP. 	<p>Secondary data collection:</p> <ul style="list-style-type: none"> Collected multiple data sets from various sources by way of desktop research. 		e.g. SARS; Quantec; BMI; StatsSA; HEMIS; TVETMIS; Previous SSPs; World Bank; Trading Economics; TransUnion; and DHET.	10/2019 to 08/2020

Limitations

- A significant number of companies have not been assigned company sizes in the Skills Development Levy (SDL) database.
- The unavailability of SARS data categorising firms by province for the 2019/20 period.
- A significant number of organisations which have not been assigned energy/water-related SIC Codes in the SARS Skills Development Levy (SDL) database.
- Time constraints in the development of the Sector Skills Plan continue to pose a significant challenge.

Conclusion

The EWSETA has endeavoured to further enhance its sector skills planning by proactively undertaking research in order to maintain an evidence-based approach to planning and decision-making. Therefore, the EWSETA will continue to follow this approach by implementing the EWSETA research agenda as a credible mechanism for supporting strategic and annual performance planning imperatives.





SECTOR PROFILE



1.1 INTRODUCTION

This chapter provides a profile of the energy and water sector and was developed using the following data sources:

- Analysis of secondary data sources (e.g. StatsSA, SARS, National Treasury, etc.) involving economic and labour market profiling by way of a combination of desktop research, as well as analysis of WSP/ATR submissions.
- A review of Standard Industrial Classification (SIC) codes as a secondary data source derived from Government Gazette No. 42589 (22 July 2019).

- Analysis of the EWSETA-registered companies/organisations as secondary data derived from the Skills Development Levy (SDL) database.

1.2 SCOPE OF COVERAGE

The EWSETA is a public entity established in terms of the Skills Development Act 97 of 1998 (as amended) and has a mandate to facilitate skills development within the energy and water sectors (EW) of the South African economy. The Standard Industrial Classification (SIC) codes in relation to the EW sector are classified according to industrial coverage, and are tabled below as follows:

Table 2: EWSETA Sector Industry Classification (SIC) Codes¹

SIC Code	Sector	Subsector	No. of Companies 2018/19	No. of Companies 2019/20	Percentage (%) of Companies	Variance (%) 2018/19 - 2019/20
41111	Energy	Generation of energy	475	473	18,96	-0,42
41112	Energy	Distribution of purchased electric energy only	127	141	5,65	11,02
41114	Energy	Generation of renewable energy	240	271	10,86	12,92
41115	Energy	Transmission of energy	36	39	1,56	8,33
41116	Energy	Project management, maintenance and operation of electrical generation, transmission and distribution, plants, networks and systems	522	555	22,24	6,32
41118	Energy	Marketing of electricity	137	143	5,73	4,38
41200	Energy	Manufacture of gas; distribution of gaseous fuels through mains	240	254	10,18	5,83
50222	Energy	Construction of pylons for electric transmission lines	52	54	2,16	3,85
87141	Energy	Industrial research for electrical energy	101	106	4,25	4,95
41300	Energy	Steam and hot water supply	28	28	1,12	0,00
42000	Water	Collection, purification and distribution of water	166	175	7,01	5,42

¹ Note: For the purpose of analysis, the values indicated in the table exclude organisations with "undefined" SIC Codes.



42001	Water	Public water enterprises: Collection, purification and distribution of water, including potable water supply, domestic waste and sewage systems, refuse and sanitation services	13	13	0,52	0,00
42002	Water	Private water companies: Collection, purification and distribution of water, including potable water supply, domestic waste and sewage systems, refuse and sanitation services	23	25	1,00	8,70
42003	Water	Irrigation Boards: Collection, purification and distribution of water, including potable water supply, domestic waste and sewage systems, refuse and sanitation services	14	14	0,56	0,00
94003	Water	Water and sanitation services (portable water supply, domestic wastewater and sewage systems)	193	204	8,18	5,70
Grand Total			2367²	2495	100,00	-

The EW sector is made up of 15 subsectors. According to the SARS SDL database, in 2019/20 there were 2,495 total organisations registered within the EW sector, of which 2,064 (82,73%) organisations were registered in energy and 431 (17,27%) registered in the water sector. Project management, maintenance and operation of electrical generation, transmission and distribution, plants, networks and systems represents the largest single subsector, with 22,24% (555) organisations registered, closely followed by generation of energy representing 18,96% (473) of total registered organisations in 2019/20. During 2018/19 there were 2,367 organisations registered with the EWSETA. Thus, there has been an overall increase of 128 organisations recorded, representing a 5,41% increase year-on-year. This could be attributable to several reasons. For instance, new entrants accessing the sector and increasing competition due to the proliferation of alternative/substitute

products and services, as can be seen in the renewable energy segment (12,92% increase); consumer-driven demand; expansion/ shifts in existing company core business; or marginally, the residual effects of inter-SETA transfers. Be as it may, this represents growth for the EWSETA. Interestingly, the subsector experiencing the largest growth with respect to the number of entities registered between 2018/19 and 2019/20 is SIC Code 41114 – Generation of renewable energy (12,92% increase). Collectively, the energy subsectors experienced larger average growth (5,72%) during the same period when compared with the water subsectors (3,96%). The general average growth experienced in both the energy and water sectors may potentially indicate more opportunities being identified by related businesses. However, it is important to note that the impact of the COVID-19 pandemic is yet to be fully realised; the effects of which could potentially dampen growth efforts across

² Excludes a total of 264 organisations with "undefined" SIC Codes for the 2019/20 financial period.



the EW sector. For example, the pandemic has caused industries across South Africa to cease operations, which will have a negative impact on the sector in one way or another due to reduced/lack of productivity, income, and ultimately, sustainability.

1.3 INTRODUCTION

There exist numerous role players across the energy and water sector who make an important contribution to the skills development landscape. However, the potential impact of COVID-19 (of which is yet to be fully realised) may dampen skills development efforts across the sector in the short to medium term. For example, business leadership has become more important than ever in the mitigation of adverse outcomes emanating from COVID-19; a shift in the demand for goods and services may reduce

productivity and ultimately, revenue; employee retrenchments may cause significant disruptions to business viability and continuity; and social distancing may severely impact training objectives. Though the above may notably erode education and training efforts, it is imperative for the SETA and the EW sector to continue to work towards the achievement of the desired objectives; despite the apparent realities which may come to be. It is for this reason that key role players, together with the EWSETA, should continue to explore more efficient and effective ways of successfully delivering learning programmes to the sector at large.



The table below presents examples of key role players³ within the energy and water (EW) sector as follows:

Table 3: Key role players in the energy and water (EW) sector⁴

Function/ Purpose	Key Role Player(s)	Role(s)
Regulation (Energy)	DOE NERSA NNR NRWDI SANEDI CEF PASA NECSA	The Department of Energy (DOE) is primarily responsible for policy development, as well as ensuring exploration, development, processing, utilisation and management of South Africa’s mineral and energy resources. The National Energy Regulator of South Africa (NERSA) is the regulatory authority for electricity, piped gas and petroleum pipelines. The National Nuclear Regulator (NNR) is responsible for safety standards and regulatory practices for the protection of people, property and the environment against nuclear damage. The National Radioactive Waste Disposal Institute (NRWDI) is dedicated to professional nuclear waste management and disposal services in accordance with the NRWDI Act, Act No. 53 of 2008. The South African National Energy Development Institute (SANEDI) stimulates innovation in energy research and development. The Central Energy Fund (CEF) researches, finances and develops appropriate energy solutions to meet SA’s future energy needs. Petroleum Agency South Africa (PASA) promotes the exploration of natural oil and gas (onshore and offshore). Over and above other mandated responsibilities, the South African Nuclear Energy Corporation (NECSA) manages and operates the Vaal puts National Radioactive Waste Disposal Facility in the Northern Cape on behalf of the NRWDI.

³ Note the table is not an exhaustive list of all role players, but instead provides examples of key role players across the energy and water sector.

⁴

KEY	
Energy Sector Role Players	
Water Sector Role Players	
Other Role Players	



Function/ Purpose	Key Role Player(s)	Role(s)
Generation & Production	ESKOM SASOL IPPs	ESKOM generates, transmits and distributes electricity to more than 5.5 million customers in the industrial, mining, commercial, agricultural and residential sectors, as well as to redistributors. Its main market is South Africa, including neighbouring Southern African countries. Independent Power Producers (IPPs) are mandated to generate electricity through renewable energy sources such as solar, wind, biomass, small hydro and landfill gas power, and are spearheaded through the Renewable Energy Independent Power Producer Procurement.
Production	SASOL	SASOL develops and commercialises technologies, as well as builds and operates world-scale facilities to produce a range of high-value product streams, including liquid fuels, chemicals and low-carbon electricity.
Transmission	ESKOM PETRONET	Being a division of Transnet and custodian of the country's strategic pipeline assets, Petronet owns, operates, manages and maintains a network of 3,000 kilometres of high-pressure petroleum and gas pipelines.
Distribution	ESKOM PETROSA MUNICIPALITIES FUEL DISTRIBUTORS SAPP	As a distributor, PetroSA is a state-owned oil and gas company mandated to improve the supply of fuel, oil and gas to the country. The Southern African Power Pool (SAPP) provide reliable and economical electricity supply to the consumers of each of the SAPP members consistent with the reasonable use of natural resources. It allows for the free trading of electricity between the Southern African Development Community (SADC) member countries.
Users	DOMESTIC INDUSTRIAL	Users of energy include domestic (e.g. residential dwellings), as well as industrial users (e.g. commercial applications).
Research & Development	SANEDI	The South African National Energy Development Institute (SANEDI) stimulates innovation in energy research and development.
Regulation (Water)	DWS WATER TRIBUNAL	The Department of Water and Sanitation (DWS) is responsible for ensuring that the country's water resources are protected, managed, used, developed, conserved, and controlled through regulating and supporting the delivery of effective water supply and sanitation. The Water Tribunal is an independent body established with the aim of mediating appeals against directives and decisions made by responsible authorities, catchment management agencies (CMAs) or water management agencies about matters covered by the National Water Act, Act 36 of 1998, like the issuing of licenses to use water.
Resource Management	CATCHMENT AGENCIES	Catchment Management Agencies (CMAs) manage resources at catchment level in collaboration with local stakeholders (with specific focus on involving local communities in decision-making) regarding the meeting of basic human needs.
Bulk Infrastructure	WTE TCTA WATER BOARDS KOBWA	The Water Trading Entity (WTE) is responsible for the development, operation and maintenance of specific water resources infrastructure, as well as manages water resources in specific water management areas. Trans-Caledon Tunnel Authority (TCTA) is a state-owned entity (SOE) specialising in project financing, implementation and liability management, and is responsible for the development of bulk raw-water infrastructure. Water Boards are separate legal entities that derive their mandate from the Water Services Act (1997). There are nine (9) Water Boards that provide bulk potable water services to the



Function/ Purpose	Key Role Player(s)	Role(s)
Bulk Infrastructure <i>contd.</i>		municipalities in which they operate, as well as to other water service institutions and major customers within designated service areas. Komati Basin Water Authority (KOBWA) was established in terms of a treaty between South Africa and Eswatini (formerly known as Swaziland) for planning and management of all activities on the bulk infrastructure, systems operation, systems development, emergency preparedness and other related functions to sustainably manage the water resources of the Komati River Basin. It finances, develops, operates and maintains the water resources infrastructure in the basin, comprising the Driekoppies Dam in South Africa and the Maguga Dam in Eswatini.
Distribution	MUNICIPALITIES	Municipalities across provinces of South Africa are responsible for the efficient and effective distribution of water throughout the water network system.
Users	DOMESTIC INDUSTRIAL WUAs	The primary users of water refer to those within the residential context, as well as those at commercial level. Furthermore, Water User Associations are cooperative associations of individual water users who undertake water-related activities at local level for mutual benefit.
Waste Removal & Treatment	MUNICIPALITIES	Municipalities are also responsible for ensuring the removal of waste, as well as the treatment thereof.
Research & Development	WATER RESEARCH COMMISSION	Promotes co-ordination, co-operation and communication in the area of water research and development; establishes water research needs and priorities; stimulates and funds water research according to priority; promotes effective transfer of information and technology; and enhances knowledge and capacity-building within the water sector.
Professional Bodies	ECSA PIRB SACNASP	The Engineering Council of South Africa (ECSA) Regulates the engineering profession; the Plumbing Industry Registration Board promotes good plumbing practices that uphold integrity of water supply and usage, and health and safety prescripts; whilst the South African Council for Natural Scientific Professions (SACNASP) Regulates natural sciences practitioners in South Africa. These entities are entrusted with maintaining control or oversight of the legitimate practice of occupations, and are typically involved in regulatory, usage, best practice and/or other such related functions.
Labour Relations & Collective Bargaining	NUM NUMSA IMATU SAMWU	The National Union of Mineworkers (NUM) seeks to ensure that members actively participate in the union's activities in determining the destiny of the union; the National Union of Metal Workers of South Africa (NUMSA) is the biggest metalworkers trade union in South Africa and works to protect workers from dangerous and unhealthy conditions; the Independent Municipal Workers Union (IMATU) is a progressive trade union operating in the municipal and allied sector of the South African workplace; and the South African Municipal Workers Union (SAMWU) is affiliated with the congress of South African trade unions and amongst other things, strives to protect and advance the wages and work conditions of workers.



Function/ Purpose	Key Role Player(s)	Role(s)
Additional Role Players	WISA NBI SANEA SAPVIA IOPSA CSIR	<p>Water Institute of Southern Africa (WISA) plays an active role in the discourse of water in the public domain. The National Business Initiative (NBI) aims to build a South African business community that plays a meaningful, trusted and action-orientated role in the achievement of a sustainable, equitable and inclusive society. The South African National Energy Association (SANEA) is the South African Member Committee of the World Energy Council and represents a hub for objective thought leadership on energy and related matters. The South African Photovoltaic Industry Association (SAPVIA) is a not-for-profit body which consists of active role players in South Africa’s photovoltaic market who have a genuine, invested presence in the country.</p> <p>The Institute of Plumbing South Africa (IOPSA) is a voluntary national body that provides a platform for qualified accredited plumbers.</p> <p>The Council for Scientific and Industrial Research (CSIR) A scientific and technology research organisation that researches, develops, localises and diffuses technologies to accelerate socioeconomic prosperity in South Africa.</p>

Through the EWSETA, identified key role players become active participants in the drive towards the achievement of outcomes prescribed in the NSDP. For instance, employers:

1. Submit workplace skills plans (WSPs) to the EWSETA which to a great extent identify occupations in high demand, as well as hard-to-fill vacancies (HTFVs), which responds directly to **NSDP Outcome 1**.
2. Through partnerships and the implementation of learning programmes, employer organisations provide a platform for the effective facilitation of workplace-based learning (WBL) opportunities, which responds directly to **NSDP Outcome 2**.
3. In working with the EWSETA, organisations support the overall improvement of the level of skills in the South African workforce (**NSDP Outcome 3**).
4. Through participation in EWSETA research employers play a critical role in sharing insights with respect to the learners and organisational outcomes post completion of respective learning programmes (**NSDP Outcome 4**, particularly **sub-outcome 2**).

With respect to COVID-19, data collected from stakeholders in the form of qualitative research suggests skills development imperatives will

indeed be prioritised over the next 12 months. This is encouraging as stakeholder play a vital role in the implementation of learning programmes across the sector.

1.4 ROLE PLAYERS ACROSS POST-SCHOOL EDUCATION AND TRAINING (PSET) INSTITUTIONS

Even though post-school education and training (PSET) institutions have not been captured in the above, they do however play a pivotal role for the sector. Chapter 3 of this sector skills plan (SSP) provides a description of the purpose of these institutions, as well as the skills supply role they play. The below provides a brief summary of how PSET institutions can be linked to the NSDP as follows:

1.5 PUBLIC HIGHER EDUCATION INSTITUTIONS (HEIS)

When considering the formal approach to education and training offered across a multitude of disciplines, HEIs can be directly linked to outcomes prescribed in the National Skills Development Plan (NSDP), such as NSDP Outcome 1 (especially sub-outcomes 3 and 4), which respond to the need for education and training in targeted priority occupations; and Outcome 3, which emphasises the overall improvement of the level of skills amongst



workers, where formal education and training can serve to enhance or formalise level of knowledge and competencies.

1.6 PRIVATE HIGHER EDUCATION INSTITUTIONS (PHEIS)

PHEIs offer higher education, that is, programmes equivalent to those provided by traditional Universities, Comprehensive Universities and Universities of Technology (UOTs) that fall on the Higher Education Qualifications Sub-framework (HEQSF). Thus, PHEIs can be linked to **NSDP Outcome 1 (particularly sub-outcomes 3 and 4)**; and **Outcome 3**.

1.7 TVET AND CET COLLEGES

The primary strategic objective for public TVETs is to “increase access into and improve success in programmes that lead to intermediate and high-level learning (DHET, 2020). Such skills create opportunity for learners to have direct access to workplace-based learning opportunities, and the subsequent possibility of employment as an ultimate outcome. Therefore, TVET Colleges can be linked to **NSDP Outcome 1 (sub-outcome 3 and 4)**; **Outcome 2**; **Outcome 3**; **Outcome 4 (sub-outcome 2)**; and **Outcome 5 (sub-outcome 1)**. Community Education and training Colleges (CTECs) were established as a separate subsector within the PSET system in order to provide a pathway to other PSET institutions, such as TVET colleges and universities, particularly for the youth and adult population who do not have access to basic education and further education and training. Thus, CETCs have a very critical role to play within the PSET landscape as a supporting structure underpinning the broader vision of education and training in South Africa, outcomes of which can be directly linked to **NSDP Outcome 3**; and **Outcome 5 (sub-outcome 2)**.

1.8 PRIVATE COLLEGES (PCS)

Private Colleges offer qualifications or part-qualifications that are registered on the National Qualifications Framework (NQF) at Levels 1 – 4. The intended outcomes of these

institutions can therefore be linked to NSDP Outcomes aimed at skills provision such as **NSDP Outcome 3**; and **Outcome 5 (sub-outcome 2)**, although PCs may offer high-level qualifications, such as diplomas and degrees.

The shutdown of PSET institutions across the PSET landscape during the national lockdown will most likely have a negative effect on the 2020 calendar, where the supply of qualified learners may be significantly disrupted. Therefore, skills delivery mechanisms such as distance learning will become increasingly important methods of education and training as a means of mitigating against COVID-19 and its negative influence on the landscape.

1.9 ECONOMIC PERFORMANCE

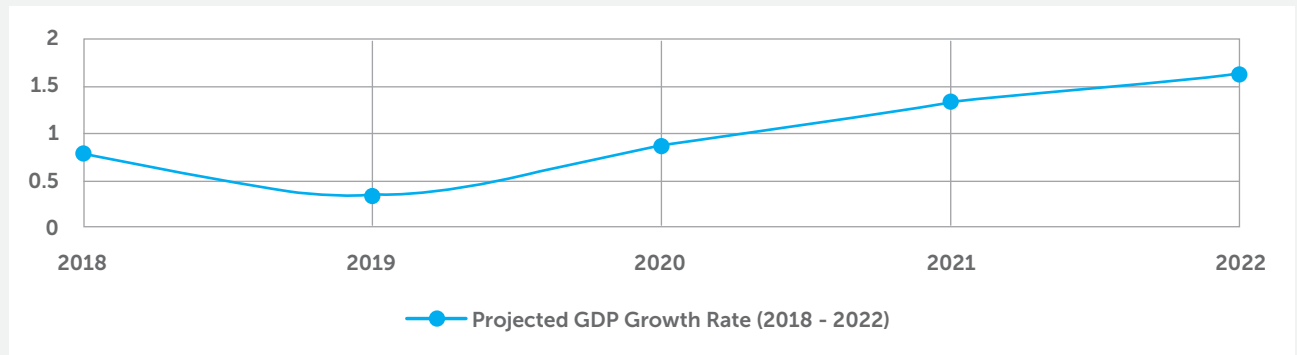
It has been reported that governments across the globe have been preparing to revert to fiscal stimulation, quantitative easing and lowering of interest rates as a direct consequence attributable to the COVID-19 pandemic. South Africa had previously lowered interest rates earlier this year in attempt to stimulate support for market activity. However, the country’s options during such a time remain limited, considering the poor overall performance of the GDP growth rate in more recent times which has made it exceedingly difficult for the country to focus spending on infrastructural development. For instance, government is likely not able to rely on fiscal policy measures given the already high deficit ratio and spiralling debt (Quantec, 2020). Further compounding the already dire economic climate, the rapid global spread of COVID-19 meant South Africa had to resort to drastic measures to curb the impact of the disease’s volatile nature; i.e. the national lockdown, which resulted in low to no activity across industries for more than 21 days. The economic impact thereof will see the country reroute spending, which could’ve been utilised for infrastructural development, but instead directed towards disaster management and reserves to help businesses and individuals deal with the economic fallout as a direct consequence of the coronavirus and the national state of disaster (Quantec, 2020).



1.9.1 Gross Domestic Product (GDP)

Key economic indicators, such as gross domestic product (GDP), are important indicators within the South African context. The below provides a brief analysis of this critical index.

Figure 1: Projected GDP Growth Rate (2018 - 2022)



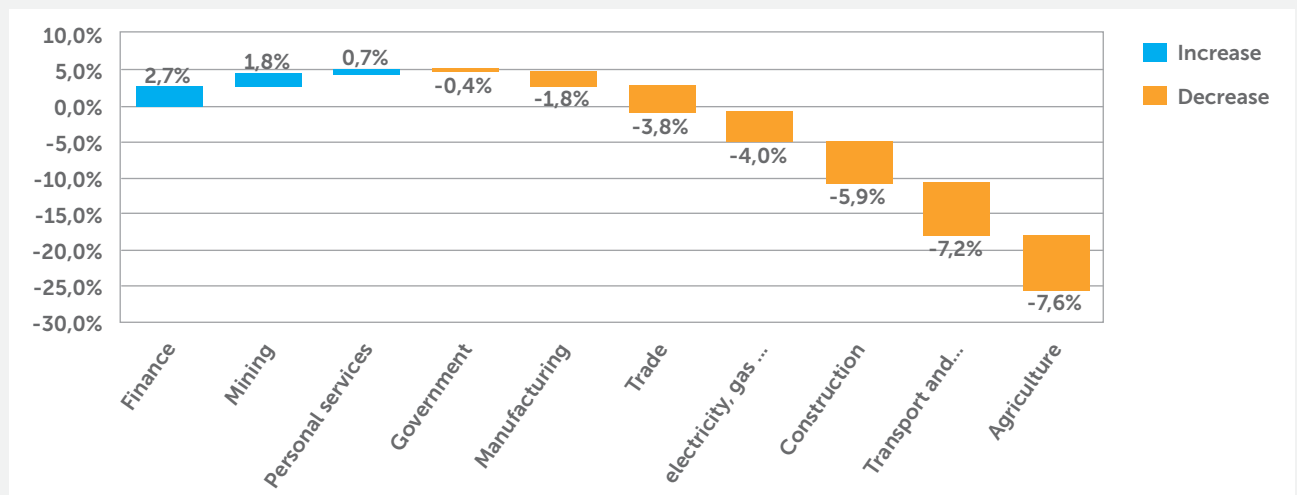
Source: Adapted from (National Treasury, 2020)

The fourth quarter (Q4) of 2019 saw South Africa’s GDP contract by 1,4% which has resulted in the country being catapulted into a second economic recession within a short space of two years. This adverse outcome was preceded by a contraction of 0,8% in GDP in Q3 of the same year. This marks the third recession for South Africa since 1994 (StatsSA, 2020).

1.9.2 Industry performance in terms of growth – South Africa

With respect to South African industry, the below provides a summary of performance in terms of growth as follows:

Figure 2: South African Industries - Fourth Quarter (Q4) Performance (2019)



Source: Adapted from (StatsSA, 2020)

The electricity, gas and water industry declined by 4,0% during Q4 of 2019; whilst construction, transport and communication, and agriculture contracted by 5,9%, 7,2%, and 7,6% respectively. In notable contrast, personal services, mining, and finance industries experienced growth, growing by 0,7%, 1,8% and 2,7% respectively (StatsSA, 2020). South Africa’s energy and water sectors were dealt

a fair share of challenges in 2019, not to mention the invasive and damaging intrusion of COVID-19. Whilst drought and floods adversely affected certain segments of the industry, causing unconscionable damage to power stations, water supply, and the industry as a whole (StatsSA, 2020), COVID-19 on the other hand plagued the nation into an economically devastating national lockdown. The national



lockdown was necessary, of which real industrial impact is yet to be determined.

1.9.3 Inequality and Poverty

Despite the country having solid infrastructure and much potential for further development, South Africa continues to grapple with high levels of poverty, large-scale unemployment, widening income gaps, and fragility of the financial system. The local Gini Coefficient remains relatively high, which indicates significant disparities in the form of pervasive inequality.

With a serious poverty burden, the provinces with the highest proportion of adults living in poverty are Limpopo (67.5%), Eastern Cape (67.3%), KwaZulu-Natal (60.7%), and North West (59.6%); with Gauteng and Western Cape representing the lowest levels of poverty in

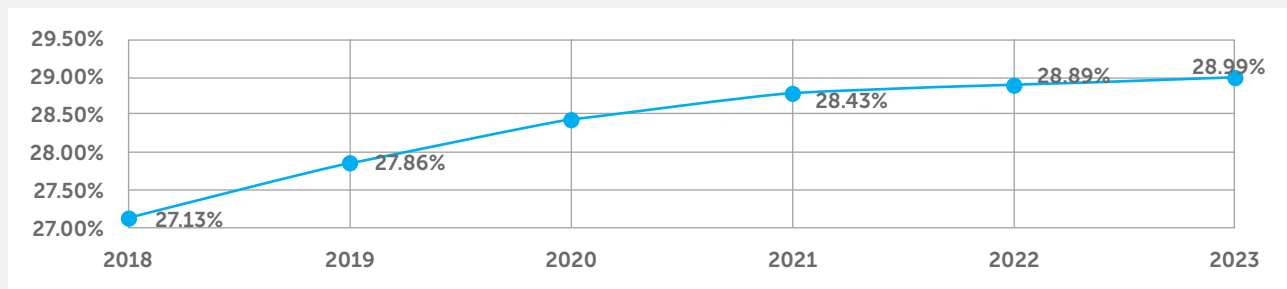
relative terms at 29.3% and 33.2% respectively (StatsSA, 2019).

For the country as a whole, collective effort from all spheres of the economy is required in order to find sustainable ways of improving overall quality of life for all citizens; including the creation of meaningful jobs made available to those who are capable and willing to participate in the sustainable development of South Africa. However, as the realities of COVID-19 become increasingly apparent, so will the resulting potential increase of abject poverty.

1.9.4 Unemployment

The rate of unemployment remains stubbornly high. The figure below depicts most recent, as well as projected unemployment trends in South Africa.

Figure 3: Unemployment Trends – South Africa (2018 – 2023)



Source: Adapted from (CEIC, 2020)

By the end of the calendar year of 2019, the local unemployment rate stood at roughly 28%-29%. With now more than 55% of youth finding themselves without formal work, and an unacceptably high number of South Africans faced with unemployment (28%-29%) – an increase from a previous 27.6% during the second quarter of 2019 (Trading Economics, 2019), the country needs to urgently find sustainable solutions. The rate of unemployment across the country is expected to increase due to the COVID-19 pandemic despite qualitative

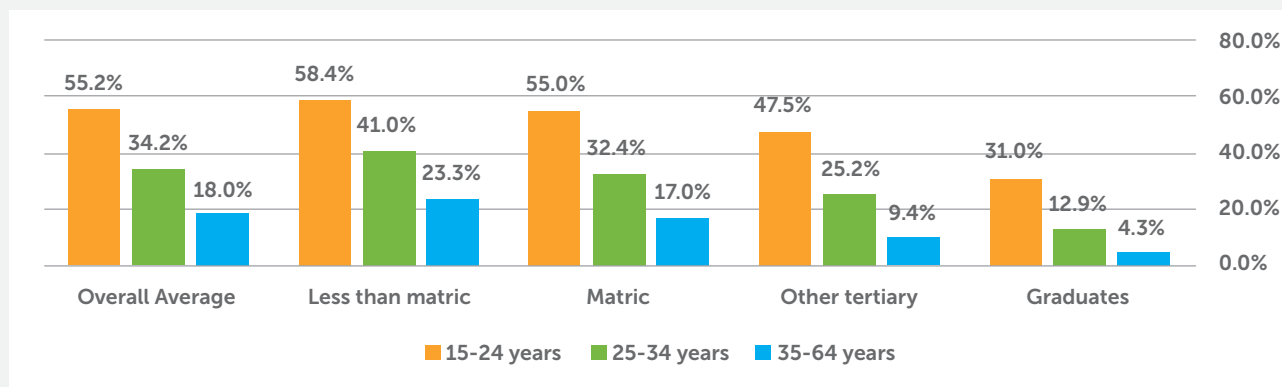
data obtained during interviews with sector stakeholders revealing only two organisations faced with retrenchments at the time of updating of this SSP.

1.9.5 Unemployment rate by education level and age group (Q1:2019)

The figure below depicts the discrepancies between unemployed persons with respect to education level. Notably, the unemployment rate among the youth is higher, irrespective of level of education.



Figure 4: Unemployment rate measured according to age and level of education



Source: Adapted from (StatsSA, 2019)

Based on the above, it is particularly interesting to note that the lowest rate of unemployment amongst the youth are those who have graduate level education (31%). In fact, this finding is evident throughout all three listed age categories. Could this be an indication that graduates have a higher chance of finding employment amongst the youth? If so, then the post-school education and training (PSET) system must ensure continued support of youth in terms of supply of the most relevant and desired skills and qualifications. Notably, those with an education level lower than matric appear to experience the most prominent level of unemployment across all age groups. In accordance with the data analysed, it is evident that secondary level education plays a significant role in unemployment. Perhaps this emphasises the need to formalise direct synergies between basic education and PSET as a means of responding to a climate where the rate of youth unemployment remains relatively higher than all other age categories, irrespective of level of education. Thus, interestingly, it seems there may exist a correlation between age and unemployment rate; hence as the age variable increases, unemployment rate decreases, irrespective of level of education. However, it is equally important to note that the proportion of South African youth constitutes almost a third of the entire population of South Africa (StatsSA, 2019) which may influence the observed unemployment trends across age categories.

1.9.6 Employment Trends in the Electricity, Gas and Water Supply Industry

According to StatsSA (2019), there has been a downward trend with respect to the total number of persons employed in the electricity, gas and water supply industry since June of 2017. This may very well be linked to the declining economic growth rate of the country, further exacerbated by slow industrial progress. By June of 2018, the industry experienced a decline of 3,13% in the total number of workers reported, followed by a stronger decline of 4,84% during the same period of the following year (i.e. 2019). Thus, additional stress factors may soon become evident as a result of COVID-19 and implications thereof. Despite the negative aspects, future plans to maximise the impact of the energy mix may present much opportunity for newfound employment prospects. Comparatively, technological advancements such as improved water treatment processes may also present further opportunities.

1.9.7 Employment Growth

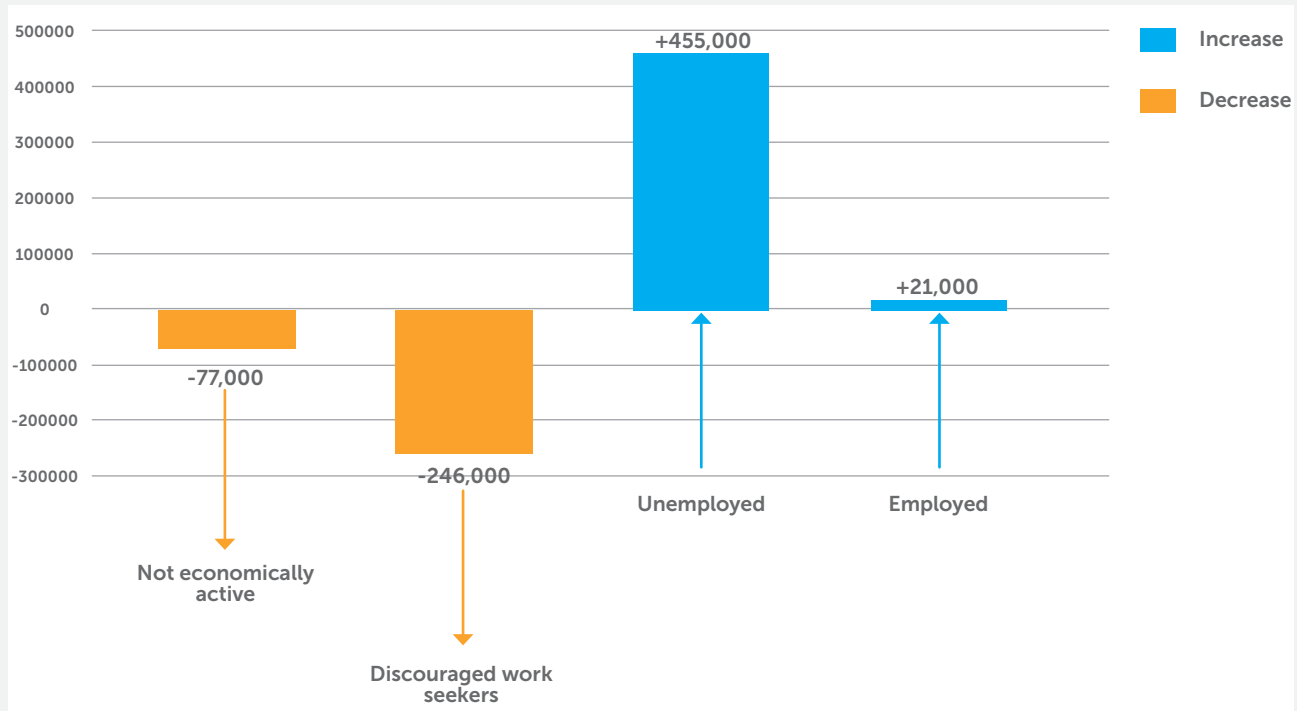
Despite the working-age population (15 – 64 years of age) increasing by 150,000 people between Q1 and Q2 of 2019, there was however a reduction in the labour force participation rate to approximately 59.3% (StatsSA, 2019). Prospects for growth seem dire; therefore, the performance of the South African economy will have to significantly improve in order to allow for the facilitation



of sustainable and meaningful job creation. Gainful employment must remain at the top of the socio-economic agenda. Against a backdrop of an alarmingly high unemployment rate, prospects for the growth levels required

to stabilise the job market seem almost unattainable in the short to medium term. For the country, continued efforts in the quest to increase the number of people in employment has reached critical point.

Figure 5: Employment changes between Q1:2019 and Q2:2019 (quarter on quarter)



Source: Adapted from (StatsSA, 2019) <http://www.statssa.gov.za/wp-content/uploads/2019/07/QLFS-data-story-grap.jpg>

The number of people in employment in South Africa grew by 21,000 incumbents quarter on quarter between quarter 1 (Q1) and quarter 2 (Q2) of 2019. However, there were an additional 455,000 people who were identified as being unemployed during the same period (StatsSA, 2019). During Q3 of 2019, the share of young people who were not in employment, education or training (NEET) remained constant at 32,3% (3,3 million) compared to Q2 of the same year. Overall, of the 20,4 million people aged between 15-34 years, 40,4% were NEET, representing an increase of 0,1% compared to Q2 of 2019 (StatsSA, 2019).

1.10 ENERGY

The ever-growing demand for energy across South Africa places additional pressure on an already over-committed energy infrastructure. Though the vast majority – around 84% of local households – are connected to the electricity grid, the current population growth

implies a sustained increase in the demand for energy (StatsSA, 2019). Thus, secure energy supply, not only to households, but to the country as a whole, is an absolute necessity. Continued efforts in the training and supply of competent, motivated and willing individuals to assume roles in energy-efficient innovations and technologies will help support the quest for a sustainable energy infrastructure designed to cater to the many needs of the economy.

Since renewable energy is set to constitute an important component of the energy mix, conventional thermal power currently remains the dominant solution. Be as it may, renewable energy must continue to form part of South Africa’s planning, which directly implies the need for appropriate training of learners in this field who will respond to future energy needs. For example, solar-related occupations, such as solar photovoltaic technicians, who perform



maintenance on existing solar solutions. Examples of other renewable energy sources include wind, biomass, geothermal and hydropower.

1.11 THE FUTURE OF ENERGY IN SOUTH AFRICA

The increased focus on renewable energy sources such as wind, gas and solar are at the fore of the energy agenda with respect to sustainable electricity sources (Averda, 2019). This not only has the potential to provide increased, large-scale power supply to the currently strained power grid, but may also offer new job opportunities for those seeking to enter the industry, thereby supporting employment growth and economic productivity.

The 2030 power plan, as unveiled by the Department of Mineral Resources and Energy (DMRE), expresses how the Integrated Resource Plan (IRP) aims to diversify the energy mix while attempting to address insufficient energy capacity (Doyle, 2019). The energy mix will see contribution of coal drop to 58,8% by 2030, whilst renewable sources will increase to 24,7% - in part owed to the fact that renewable energy technologies are increasingly becoming more affordable and efficient; whilst gas will assume a 16% share. This indicates great potential for new skills to be expanded/developed and introduced to an industry shaped by new energy requirements and demands. The decommissioning of power plants in favour of the shift to newer technologies will offer the prospect of new job opportunities, and thus, funding must be availed for the training/re-training of workers to take advantage of the promising possibilities (Department of Public Enterprises, 2019).

Despite the need to curb the over-reliance on coal-fired power stations, coal will however remain a significant component of the energy mix. However, investors have been urged to direct their funding towards clean coal technologies in order to promote environmentally responsible practices (Doyle, 2019).

⁵ The indicated percentages (%) were derived from (Averda, 2019).

Though renewable energy brings the notion of great potential for South Africa’s economy, it remains that power generation in this form will not be without its restrictions. The IRP maintains the rate at which this form of energy is to be introduced into the power mix in order to “smooth out” capacity allocations and provide a constant pipeline of projects, which must be circumscribed so as to not have a negative impact on foreign direct investment. This would therefore translate into a capacity restriction of 1,000 megawatt (MW) per year for photovoltaic (PV) solar power, and 1,600MW per year for wind power.

The DOE is moving towards the diversification of energy in South Africa for both electricity and liquid fuels (GCIS, 2017). According to the Government Communication and Information System (GCIS), the government developed an Integrated Energy Plan (IEP) aimed at addressing needs with respect to liquid fuels (capacity growth) as well as the Integrated Resource Plan (IRP) for addressing issues related to electricity supply challenges. The direction of the energy sector therefore places the EWSETA at the centre in terms of training and development to equip the right people with the right skills in order to meet demand. The scope of the proposed energy mix for 2030 is presented below.

Coal will maintain the largest share of the energy mix in 2030 (45,46%), followed by gas, wind and solar (15,95%, 15,30% and 10,64%

Figure 6: Proposed energy mix in 2030⁵ - South Africa

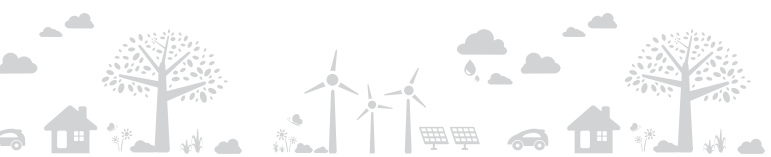
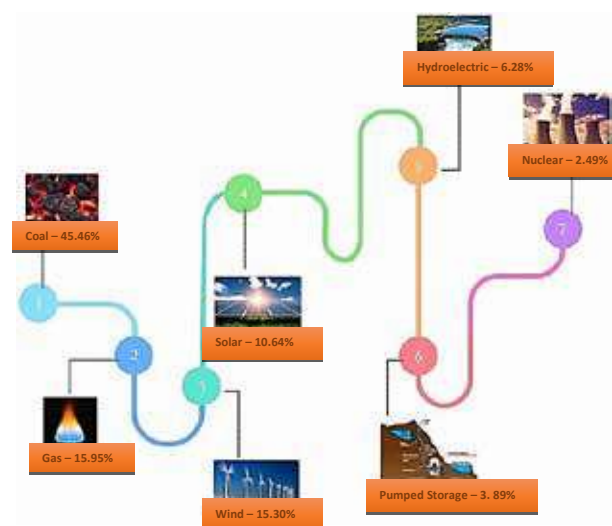
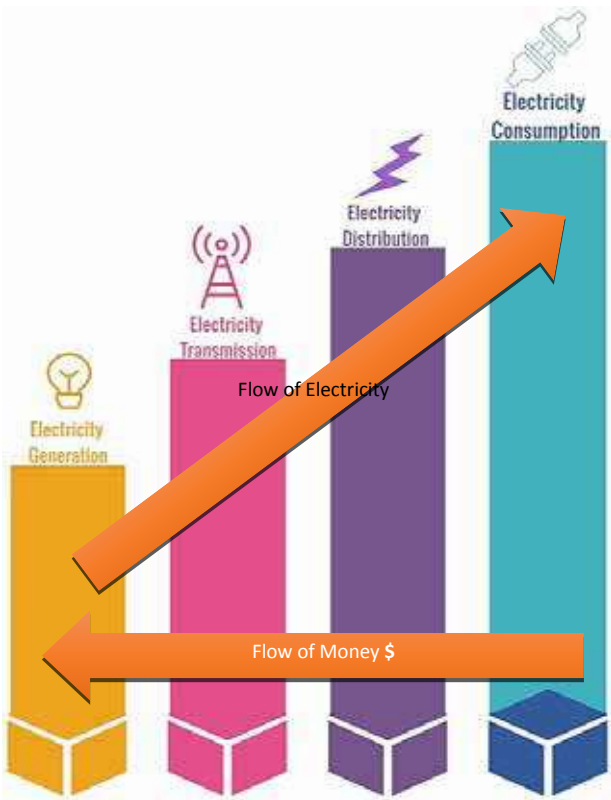


Figure 7: Value Chain for the Reformed Electricity Supply Industry



respectively). It is important to note that nuclear energy is envisaged to constitute the smallest component of the energy mix at only 2,49% of power generation in 2030. It is unsurprising that gas will constitute a relatively large proportion of the energy mix as this natural compound is found in abundance with respect to reserves in South Africa (Cape Media, 2020). Infrastructural development to maintenance skills, the proposed energy mix will rely heavily on the best and most sought after skills available. Thus, EWSETA must remain geared towards promoting education and

training interventions that address new energy demands. The restructuring or “unbundling” of Eskom will enable management focus, improve efficiency, create greater transparency around performance, provide greater protection against corruption and rent-seeking, and will give capital providers more visibility of the component parts of the sector, resulting in increased investment comfort” (Department of Public Enterprises, 2019).

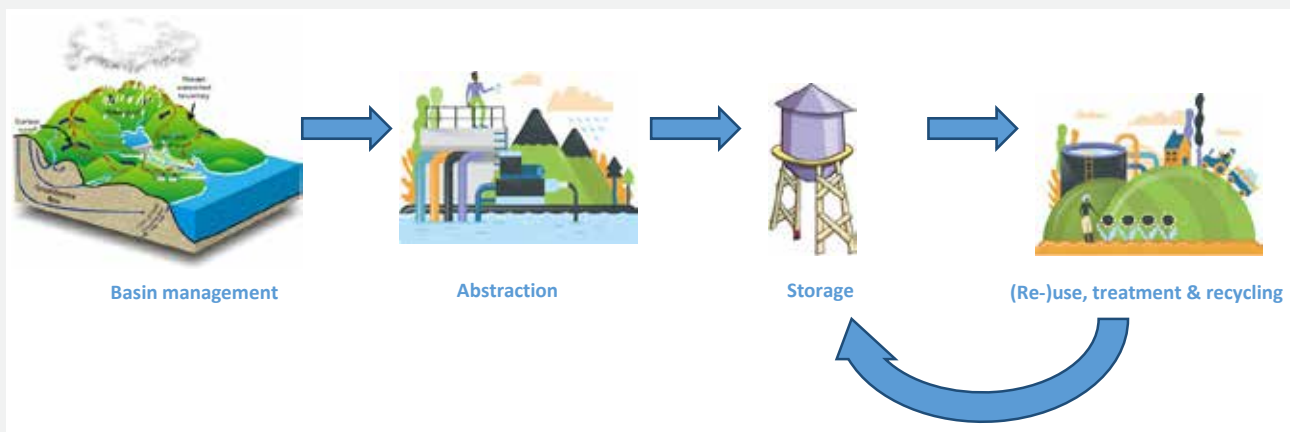
Figure 7 above presents the value chain for the reformed electricity supply industry⁶.

1.12 WATER ACCESS AND SANITATION

There is no doubt when it comes to the importance of water as a precious resource to human existence, the environment, economic development and all sustainability. In order to address past injustices, government recommended a progressive, all-inclusive law that would make water a basic human right, which refers to both the National Water Act, as well as the Water Services Act. However, the current water situation in South Africa has placed the sector under immense pressure. Considered to be a semi-arid country, urgent solutions to address water scarcity-related issues across South Africa are in dire need. Based on current usage trends, South Africa is expected to face a water deficit of 17% by 2030, and this shortage will only be exacerbated by climate change (WWF, 2017).

The diagram below provides a high-level depiction of the water value chain.

Figure 8: A high-level depiction of the water value chain⁷



⁶ Information pertaining to the value chain of the proposed reformed electricity supply industry was adapted from: (Department of Public Enterprises, 2019).

⁷ Information pertaining to the water value chain was derived from: (GreenCape, 2017).



Be as it may, around 93% of South Africans have access to piped water services, with 76% accessing basic sanitation services (South African Government News Agency, 2019). Sustainable Development Goal 6 aims to ensure availability and sustainability of water and sanitation for all. However, and despite positive developments, many across the country still rely on unsanitary and unreliable sources of water such as rivers, streams, springs, dams, wells, and stagnant water pools, especially those located in remote, unserved regions. The establishment of the Blue Drop programme is amongst measures government has put in place to ensure the delivery of good quality water that complies with the South African Drinking Water Quality Standard (i.e. SANS 241). However, this initiative has not gained much traction since its inception and it is hoped that this intervention will once again be revived in the foreseeable future.

1.13 THE FUTURE OF WATER IN SOUTH AFRICA

In accordance with the National Development Plan (NDP), government has set out priorities for water demand management and related projects. Water scarcity remains a serious issue for South Africa, which is further exacerbated by escalating demand due to socioeconomic factors such as population growth, urbanisation, rising cost of living, unsustainable usage, high levels of wastage and loss, and increasing pollution levels rendering water unfit for use (DWS, 2018). This makes effective water management services critical, thereby requiring skilled people to enable the sustainability and efficiency of water systems in the country. In South Africa, water usage exceeds reliable yield (i.e. supply from current infrastructure of around 15 billion kl/year, of which the majority constitutes surface water and return flows⁸) where around 62% is used by agriculture, 27% by municipal (3% rural and 24% urban), 3% by mining, industry, and afforestation each respectively, and 2% consumed by the energy sector (GreenCape, 2019).

Thus, the future of water in South Africa hangs precariously in the balance as the sector continues to face a myriad of challenges which

may pose increased threat to South Africa's development and sustainability where extensive work needs to be done on maintenance-related issues, storage capacity must be upgraded and increased, new dams must be built, and ageing pipes must be replaced (ESI Africa, 2019). There is no doubt that the water sector will have to find innovative ways of dealing with water scarcity and other such environmental challenges. The Water Services Act recognises "the provision of water supply services and sanitation services, although an activity distinct from the overall management of water resources, must be undertaken in a manner consistent with the broader goals of water resource management". Take for instance innovation in sanitation, where "off-grid/non-sewered" sanitation technologies present a number of realisable opportunities for "stimulating the development of a new industry, which will potentially meet several national objectives of job creation and SMME development while turning this challenge into an opportunity for a circular economy for sanitation" (Mail&Guardian, 2018).

One such innovation, known as the Sanitation Transformative Initiative (Saniti) is a sanitation model which utilises little or no water, thereby conserving 40% to 50% of freshwater in the water system whilst eliminating downstream problems associated with conventional wastewater management (Mail&Guardian, 2018). Non-sewered sanitation technologies present a significant opportunity to conserve precious water resources, and government must lend its support in facilitating the adoption of related technologies. For instance, the Department of Water and Sanitation (DWS) has endorsed the notion of a transformative environment conducive to supporting innovative water solutions. The Department of Trade and Industry (DTI), Department of Science and Technology (DST), and the Water Research Commission (WRC) have established an industrial platform for new off-grid sanitation. The adoption of ISO 30500 standards on non-sewered sanitation forms a critical component of the sanitation economy, and government must ensure alignment in this

⁸ Surface water accounts for 68% of supply, whereas return flow accounts for 13% of total reliable yield.



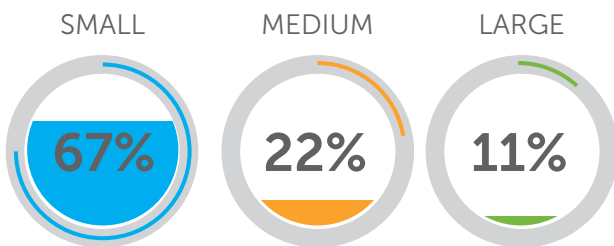
respect. In support, the DWS has been working on new regulations governing off-grid sanitation solutions, which are envisaged to promote uptake (Mail&Guardian, 2018). The net benefit of innovation in water and management thereof is the broad access to, and effective conservation of freshwater in favour of the country's inhabitants to ensure a sustainable future for all. Successful implementation of such innovative technologies would undoubtedly present much-needed opportunity for new job creation, thereby making a meaningful contribution to the sector and economy at large. By implication, the sector must realise the required supply of skills aimed at partaking in innovative problem-solving whilst addressing water and wastewater treatment-related challenges faced by the country.

1.14 EMPLOYER PROFILE

1.14.1 Employer distribution by organisation size

The below provides an overview of the size distribution of organisations across the energy and water sector. Note the emphasis on small and micro-sized enterprises.

Figure 9: Size distribution of organisations across the energy and water sector



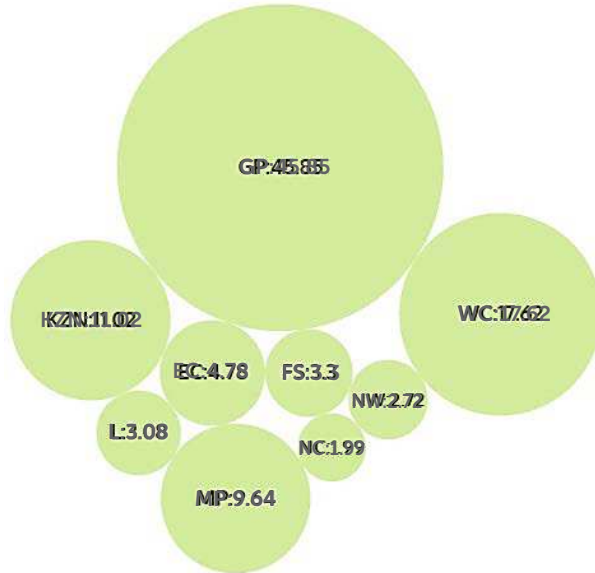
Source: Adapted from EWSETA WSP/ATR Database (2020)

According to EWSETA Workplace Skills Plan (WSP) submissions in 2020⁹, the employer profile with respect to size is made up of approximately 67% small organisations, followed by medium (22%) and large (11%). This trend is similar to the previous year's WSP submissions, which reflects the majority (approximately two thirds) of submitting firms as being small entities.

1.14.2 Employer distribution by province

The below provides a summary of the provincial distribution of EWSETA-registered organisations across the energy and water sector.

Figure 10: Provincial distribution of EWSETA-registered organisations (%)



Source: Adapted from (SARS, 2020)

Based on data revealing the provincial distribution of organisations across the energy and water sector, the Gauteng Province (GP) maintains the largest proportion of registered entities (45,85%), followed by the Western Cape (17,62%), KwaZulu Natal (11,02%) and Mpumalanga (9,64%). The Northern Cape (NC) represents the smallest proportion of registered organisations (1,99%). The largest single proportion of organisations operating in GP indicates the level of economic activity present in the province. However, being the smallest province by land size, and with extensive urbanisation patterns seen across Gauteng, additional pressures are placed on infrastructure and resources. Thus, the sector must continue to expand on innovative and sustainable solutions in attempt to foster a balance between economic activity across provinces and resource availability and dependency. For instance, the energy and water sector is increasingly coming under pressure due to increased demand for electricity, as well as the supply of water, particularly in remote areas of the country.

⁹ WSP data was used to determine the general size distribution of organisations across the sector since the SARS SDL data did not contain data relating to company sizes for approximately 332 registered companies, which ultimately "skewed" analysis findings.

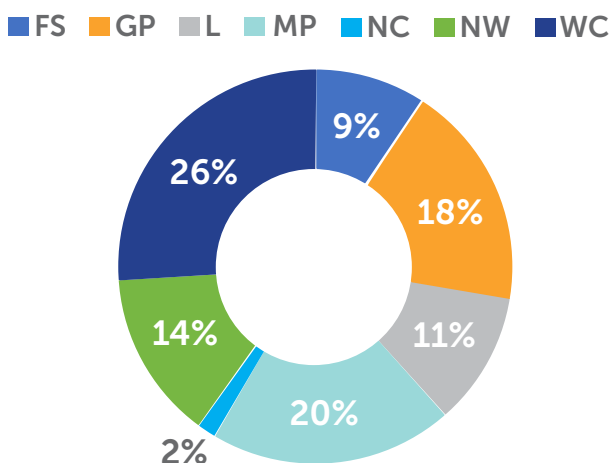


1.14.3 Company start-ups (new entrants)

As stated earlier in this SSP, there has been an overall increase of 128 organisations recorded in the EWSETA database, representing a 5,41% increase. This could be attributable to a number of factors such as: (i) potential increase in competition due to the proliferation of alternative and/or substitute products and services (e.g. as can be seen in the renewable energy segment); (ii) a notable increase in consumer demand-driven needs; (iii) an expansion or shift in existing company core business; and/or (iv) previously inappropriately placed organisations identified and transferred to the EWSETA due to the nature of their respective core business. Growth may indicate more opportunities being identified in the sector by organisations, which should elicit a positive response from stakeholders to explore further potential synergies in this respect. However, and once again, growth efforts in the sector could be dampened as a result of the COVID-19 pandemic where the rate of start-ups may be notably reduced.

1.14.4 Company closures

Figure 11: Closures by province (%)



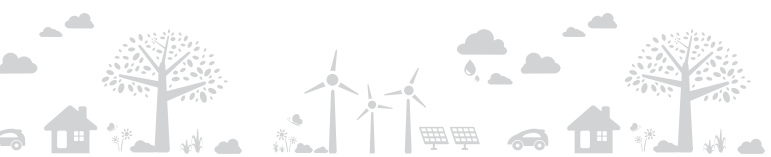
By analysis, the data as contained in the Skills Development Levy (SDL) database, revealed that around 2,36%, or 65 companies underwent liquidation during 2019/20. A number of these organisations appeared to have been Closed Corporations (CCs) and were generally micro or small organisations. From a provincial viewpoint, the largest share of closures with respect to the data were recorded in Western Cape (26%), followed by Mpumalanga (20%),

and Gauteng (18%). The province representing the least proportion of company closures during the same period was Northern Cape (2%), though it is important to remember that this province has the lowest level of sector activity with respect to EWSETA-registered organisations (1,99%). No closures were identified for two provinces, namely KwaZulu Natal and Eastern Cape (SARS, 2020). However, it goes without saying that despite the sector not necessarily experiencing closures/ liquidations as a direct consequence of the COVID-19, this narrative may change in the foreseeable future.

1.14.5 Levy paying versus non-levy paying organisations

Data analysis revealed that almost two thirds (64%) of EWSETA-registered organisations were non-levy payers in 2019/20. Furthermore, out of the 36% registered entities that paid levies to the EWSETA, 7% paid less than R5000 in total levies in the same period. Furthermore, if we consider around 194 organisations that submitted WSPs in 2020 were levy-paying entities, then the WSP/ATR submission rate for this period was roughly 21% (assuming a total of approximately 900 registered levy-paying organisations in the EWSETA database).

It remains that the EWSETA could benefit from further growth with respect to levies. Growth in the energy and water sector, particularly with respect to entities legible to pay levies, may lead to a growth in the proportion of total levy-payers for the SETA. Therefore, the EWSETA should continue to strive to increase the current levy base by facilitating skills development imperatives responding to outcomes prescribed by the National Skills Development Plan (NSDP) which refer to industry/sector development, e.g. **NSDP Outcome 3 "... to transform workplaces, improve productivity and to improve economic growth prospects in various sectors of the economy"**.



1.15 LABOUR MARKET PROFILE

According to WSPs received during 2020, approximately 76% of workers were employed in the energy sector, whilst around 23% were employed in the water sector. This relatively large variance is most likely attributable to the fact that the energy sector is notably larger than the water sector with respect to number of organisations. Just under one third of the workforce constituted youth workers (32,09%); whilst representing the ageing workforce, more than one in five workers were above the age of 50. The EW sector needs to continue to support youth development, especially in entrepreneurship development and professional networking. Male workers continued to represent a majority of the workforce (66,34%). It is particularly interesting to note this trend across OFO major groups

1, 2, 3 and 5 (roughly 64%-69% on average) representing management, professional and technical occupations, and even more apparent across groups 6, 7 and 8. The question therefore beckons as to whether or not the sector is doing enough to address issues of inequality from a gender perspective. Considering the Employment Equity Act prescribing at least a 3% representation of people living with disabilities in the workforce, just under 4% of workers reported amongst WSP-submitting firms during 2020 were workers with disabilities. In addition, it is important to mention that the effects of COVID-19 could see a significant shift in the profile of the labour force, where retrenchments and layoffs may reduce the number of workers employed in both the energy and water sectors. This may adversely contribute to the overall level of unemployment in South Africa.

Table 4: Trend Analysis of Management by Gender (2016-2020)

Sub-sector	2016		2017		2018		2019		2020	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Energy	82%	18%	74%	26%	69%	31%	62%	38%	62%	38%
Water	74%	26%	67%	33%	71%	29%	62%	38%	68%	32%

Source: EWSETA WSP/ATR Database (2016-2020)

As can be seen in the table above, WSP data revealed that males continued to represent most management level occupations (Major Group 1) across WSP-submitting firms into 2020. However, this trend has been steadily declining from about 82% and 74% in energy and water sectors respectively in 2016, to around 62% and 68% in 2020.

With respect to provincial data, though continuing to represent the highest single proportion of employees in 2020 (32,72%), Gauteng has also shown the highest overall decrease in the proportion of employees reported between 2018 and 2020 of 16,96%.

Though there is insufficient evidence to deduce any firm conclusions, it is nonetheless worth noting. In stark contrast, the North West province has seen a significant increase in the number of employees reported since 2018 of 47%. African workers continue to represent the largest share of the workforce across WSP-submitting firms, with Gauteng (16,827) and Mpumalanga (11,360) accounting for the two largest proportions. Again, this dynamic may change in the midst of the COVID-19 pandemic where unemployment levels could rise and invariably influence representation across provinces.



1.16. IMPLICATIONS ON SKILLS DEVELOPMENT

Table 5: Implications on skills development

Factor	Implications on Skills Development
Key role players	<p>Role players are critical to the sector for numerous reasons, some of which include (1) effectively identifying hard-to-fill vacancies (HTFVs) and occupations in high demand (OIHDs) through workplace skills plans, research and other such functions; (2) positively supporting the expansion of workplace learning; (3) validating evaluation of learning programme outcomes which serve to improve the overall productivity of sectoral entities; and (4) facilitating the overall improvement of the South African labour force. Post school education and training (PSET) role players have the crucial task of supplying knowledgeable, capable and determined incumbents to the sector workforce who have the aptitude to harness and master the required skills. Thus, key role players play a pivotal role in responding to prescripts identified in the NSDP. However, the effects of COVID-19 may hinder skills development in the sector in the following ways:</p> <ul style="list-style-type: none"> • A reduction of employees due to retrenchments, lay-offs and restructuring is a likely outcome which will invariably reduce training activities • Reduction of revenue, productivity and staff would result in declining participation in skills development tasks and activities such as planning and implementation of learning programmes within respective organisations (especially workplace-based learning). • Social distancing may impact efficiency and effectiveness of programme delivery; new technologies may need to be introduced for improving distance learning. • Direct interaction with SETAs may decline due to restrictions and control measures put in place to curb rate of new infections, thereby limiting stakeholder engagement activities such as face-to face interactions, data gathering and information/ knowledge sharing, career guidance initiatives, etc. • WSP/ATR submissions may be hindered; electronic and online submissions will become even more critical for those who are able to submit, and therefore hard-copy submissions may have to be reconsidered. • SETA partnerships with role players may be negatively impacted. • The shutdown of all higher education institutions during the national lockdown will most likely have a negative effect on the 2020 calendar. • The supply of qualified learners may be significantly disrupted. • Skills delivery mechanisms, such as distance learning, may become increasingly important methods of education and training.
Economic performance	<p>There is no doubt that the local economy is faced with harsh realities. Downturns in economic and industry performance spell disaster for hopes of improving job prospects of young learners seeking to enter the world of work. This increases pressures of fulfilling the narrative of expanding workplace learning opportunities should there be a growing number of company closures resulting from poor economic performance. Furthermore, the economic outlook may have a negative effect on skills development imperatives due to the following realities:</p> <ul style="list-style-type: none"> • GDP: An already ailing economy under recession and reduced to “junk status” may be further exacerbated as a direct consequence of the effects of COVID-19 which may contribute to company closures/liquidations, thereby reducing training activities. • Unemployment: Rate of unemployment may increase due to lay-offs/retrenchments, thereby reducing training outputs. • Industry performance: Industries which were showing signs of declining performance are likely to continue declining due to potential impact of COVID-19, which will have a significant impact on skills development. • Industries are faced with immense pressures of varying degrees as a result of implemented measures in response to COVID-19.



Factor	Implications on Skills Development
<p>Economic performance <i>contd.</i></p>	<ul style="list-style-type: none"> • E.g. the reallocation of funds previously reserved for infrastructural development will be rerouted to risk mitigation strategies such as company bailouts, social relief, economic support package and tax “holidays”, which may in turn reduce funds intended for education and training activities. • However, opportunities/innovations should be sought in markets/industries previously not considered (e.g. re-orientation of product and service offerings where viable) in order to explore potential revenue options for companies, which may in turn encourage training and development across new technologies, innovations, and/or nuanced disciplines. • Thus, COVID-19 could potentially bring about new innovations out of sheer necessity; or even speed up the process of bringing existing innovations to market sooner.
<p>Growth of the sector</p>	<p>Growth in the sector indicates an opportunity and potential need for an increase in the supply of the most relevant skills. For example, notable growth in the generation of renewable energy (12,92% increase) may very well warrant an increase in the supply of renewable energy engineers. Water scarcity related issues have forced industry to rethink its disposition and introduce new innovations such as off-grid sewage systems, which would call for more innovative problem-solving skills, whilst enforcing water and wastewater treatment best practices. However, COVID-19 may create new unforeseen challenges for the sector. Greater synergies between public and private sector contemporaries is therefore more critical now than ever to the enhancement of the EW sector. However, the below could add pressure to the effective and efficient delivery of learning programmes:</p> <ul style="list-style-type: none"> • Potential sector growth could be curbed by outcomes of the COVID-19 national lockdown and subsequent measures. Negative growth in the sector could be detrimental to skills development imperatives with respect to workplace-based learning programmes, which could negatively impact intended NSDP Outcomes. • Companies may be subject to closures due to lack of revenue and industry support in an already ailing economy (further exacerbated by COVID-19) whilst start-ups become increasingly difficult to realise, thereby having significant implications for skills development imperatives. • The levies that SETAs depend on will be significantly affected due to “tax holidays” and declining business activity across sectors. Mitigation efforts are paramount in order to curb the medium to long term implications (where applicable). • Much effort has gone into creating balance with respect to equitable learning outcomes in terms of, e.g. gender, race and people living with disabilities - “equal opportunities for all”. EWSETA must therefore continue to support interventions aimed at achieving fair and equitable representation of learners, especially during such difficult times with respect to COVID-19 and the general economic downturn.
<p>Labour Market Profile</p>	<p>According to StatsSA (2020), the largest single proportion of South African workers are involved in elementary occupations (3,762,000). Major disruptions to businesses as a result of COVID-19 could potentially displace many elementary workers, not to mention training thereof. Elementary workers include:</p> <ul style="list-style-type: none"> • Cleaners and helpers; Agricultural, Forestry and Fishery Labourers; Labourers in Mining, Construction, Manufacturing and Transport; Food Preparation Assistants; Street and Related Sales and Service Workers; Refuse Workers and Other Elementary Workers. <p>Supply and Demand (and job-related Implications):</p> <ul style="list-style-type: none"> • The extent of supply of required skills to the labour market may be hindered whilst certain skills may become increasingly important (e.g. Occupational Health & Safety) as a direct result of COVID-19.



Factor	Implications on Skills Development
<p>Labour Market Profile <i>contd.</i></p>	<ul style="list-style-type: none"> Increasing work-related stress factors for employees having to take on more job responsibilities amidst retrenchments may hinder training objectives. A shift in skills demand patterns as the sector adapts to new work processes and approaches could have lasting implications for skills development. New regulations and working conditions (e.g. working from home) could influence/change the nature of resources required to complete job tasks, which would in turn influence the type and level of training required. Reporting protocols may change to adapt to new tools and/or forms of communication which may require training/retraining. Restrictive measures may significantly hinder practical training sessions which would now require, e.g. e-learning platforms (though it would be difficult to train learners in this with respect to work processes/procedures requiring the use of physical equipment). Alternative/substitute technologies, products and/or services explored as a result of the effects of COVID-19 may require new skills, which may present new opportunities previously not thought of.
<p>Skills Development Levy (SDL)</p>	<ul style="list-style-type: none"> The skills development levy (SDL) 4-month tax holiday will provide struggling firms with a tax relief of four months as a measure to alleviate the negative financial impact of the COVID-19 pandemic. However, this may significantly impact SETA operations which may in turn impede effective implementation of skills development imperatives.

1.17 CONCLUSION

The implications stated above require strong leadership and sound service delivery practices for the EWSETA to successfully deliver on its mandate. With generally poor economic performance, coupled with the unfolding realities of the multidimensional impact of COVID-19, the EWSETA, together with key role players, are faced with the challenging task of strengthening skills development activities which will address skill needs across subsectors.





KEY SKILLS CHANGE DRIVERS



2.1 INTRODUCTION

Chapter two of this sector skills plan identifies factors driving change in the sector influencing skills demand and supply of skills. Data sources utilised in the development of this chapter included the following:

- i. Analysis of WSP/ATR submissions.
- ii. Field work conducted by the EWSETA in order to collect and analyse empirical data derived from qualitative interviews with respective stakeholders.
- iii. Analysis of secondary data sources involving national prescripts in the form of strategies and plans by way of desktop research.

2.2 FACTORS AFFECTING SKILLS DEMAND AND SUPPLY

There are numerous factors affecting skills demand and supply within the energy and water sector; however, there exist those most critical to organisations which play an important role in influencing the nature and order of how entities function. Factors such as technological advancement, climate change, legislation, regulations, and so forth, largely determine how organisations plan for and implement skills development objectives across the sector.

2.2.1 Major Change Drivers

The table below presents a detailed summary of the most important change drivers characterising business operations as cited by employers who were willing to share insights with the EWSETA.

Table 6: Major change drivers (2020)

Major Change Driver	Anticipated Change	Implications on Skills Development	Type of skill(s) development mechanism required in relation to Change Driver
Technological Advancement [and The Fourth Industrial Revolution (4IR)]	There is a need to establish "future-fit" organisations; with an ever-increasing need to train and more effectively assess learners so as to ensure the most appropriate "cultural fit" within the organisation.	<ul style="list-style-type: none"> • The "future-fit" approach enables evaluation of the organisation in order to establish the ability of the entity to remain competitive in a continuously evolving industry (i.e. hence the 4IR) due to technological progression. This links directly to productivity of the business, requiring the most appropriate skills to be aligned to the recommended outcomes of such evaluation, thereby maintaining productivity and competitive advantage. • The financial implications of technological advancement, such as the acquisition of new power generators resulting from technological changes, places increased pressure on the organisation. Furthermore, the re-training and training of current workers in order to adapt to such changes naturally becomes an essential component of successful business operations. • Continuous and life-long learning becomes increasingly difficult to achieve due to the negative financial impact of acquiring new technology (which can be attributed to new regulations/laws, and/or the need to remain competitive). 	<ul style="list-style-type: none"> • Training of current workers to adapt to new machinery and equipment (e.g. plant operators controlling new power generators, etc.). • Additional financial aid required for the training of new incumbents, as well as the re-training of existing workers. • Determining future skills is increasingly becoming difficult, and therefore, a new mechanism for determining future skills is required.

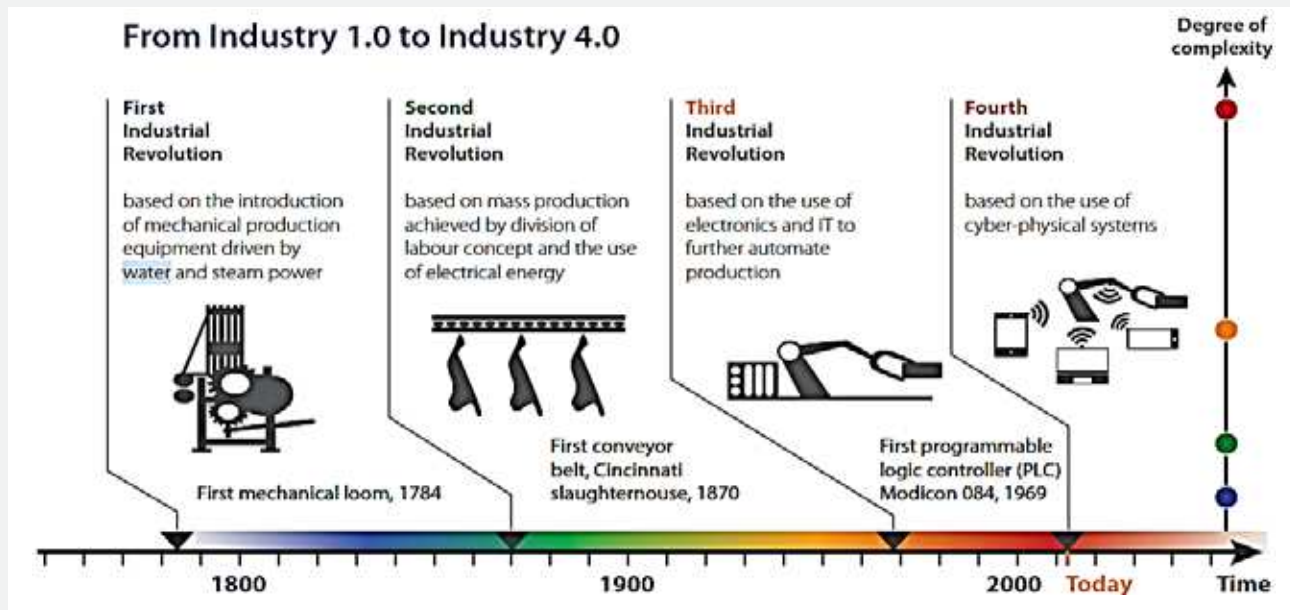


Major Change Driver	Anticipated Change	Implications on Skills Development	Type of skill(s) development mechanism required in relation to Change Driver
<p>Technological Advancement [and The Fourth Industrial Revolution (4IR)] <i>contd.</i></p>		<ul style="list-style-type: none"> • As a project-dependent business, the related costs of implementing projects has increased significantly due to technological changes, and therefore the sourcing of additional funds to aid the current training budget is critical for addressing re-training and development needs. • New technologies have aided fieldworkers and trainees in conducting work in remote locations. E.g. enhanced GPS systems have significantly improved the level and quality of digital communication devices utilised by fieldworkers working in remote and hazardous locations, which has improved safety standards as well. However, this technology comes at a significant cost, not to mention the associated costs of training and re-training current worker and new trainees. • Obsolescence of certain skills due to technological advancement has led to the reduction of human capital in certain occupations. This has also meant the reduction in training activities across the related functions of the business. • As it becomes increasingly difficult to accurately determine future skill needs as a result of the pace at which technology is rapidly advancing and 4IR, it equally becomes increasingly difficult to plan for skills required in future. This complicates skills development efforts on a large scale. 	<ul style="list-style-type: none"> • E-learning platforms are enhanced by 4IR technology requiring digital skills for implementation and end-user interaction.
<p>Climate Change</p>	<p>Climate change and unpredictable weather patterns adversely affect productivity, which in turn increases operational costs which impacts on skills development imperatives.</p>	<ul style="list-style-type: none"> • With an increase in operational costs, funding for education, training and development is increasingly diminished. • Drought resulting in large-scale water scarcity means that current employees must partake in continuous learning interventions. Water scarcity issues also hinder training of workers due to lack of water resources, as well as funds utilised for training. • Persistently dry weather patterns and conditions has resulted in fieldworkers not being able to extract water samples from the surface. Tus, it has become necessary to train more and more Hydrologists, which has significantly added to the overall cost of training. Such unforeseen circumstances have placed organisations at financial risk. 	<ul style="list-style-type: none"> • Education and training of more Hydrologists (<i>previously identified in prior SSP update</i>). • Education and training of solar energy harvesting professionals. • Educations and Training of maintenance technicians/ engineers required for up-keep of expensive equipment and related technology.



Major Change Driver	Anticipated Change	Implications on Skills Development	Type of skill(s) development mechanism required in relation to Change Driver
Climate Change <i>contd.</i>		<ul style="list-style-type: none"> Unfavourable weather conditions require the organisation to find alternative means of “harvesting” sun [solar] energy, such as Renewable Energy Engineers; which requires additional training where feasible (dependent on availability of funds for training). Unpredictable weather conditions have a negative impact on equipment (e.g. rusting of parts), which leads to an increase in operational costs, thereby reducing the amount of available funds previously designated for education and training. 	
Compliance / Regulatory	Regulations largely influence the way business operations are conducted.	<ul style="list-style-type: none"> Changes in legislation requires greater awareness, which directly affects the procurement of resources needed for business operations, which impacts the entire organisation. Thus, up-skilling of workers becomes critical for factors such as compliance and business continuity. 	<ul style="list-style-type: none"> Training of compliance officers and managers across various disciplines in the organisation and creating greater awareness of new regulations and requirements.
Economic Performance	Poor economic performance weakens profitability of the organisation.	<ul style="list-style-type: none"> A reduction in business activities due to declining trade as a result of a weakening economy means a reduction in the ability to recruit/retain workers, as well as to fund training at the required scale across the organisation. This requires a downward adjustment in the number of people to be trained. A weakening economy results in fewer available business-related projects and contracts. Organisations reduce budgets in order to salvage jobs considering COVID-19 and the financial implications thereof. 	<ul style="list-style-type: none"> Up-skilling of current workers with the capability of taking on more job responsibilities as number of employees may decline due to, e.g. retrenchments.
COVID-19 Pandemic	Major [negative] disruptions to business operations and training objectives.	<ul style="list-style-type: none"> Business shutdown due to the national lockdown has resulted in reduced productivity in terms of operations and training. Social distancing has affected the effective implementation of learning programmes. Labour regulations are changing on an ongoing basis, which will further impact training outputs and outcomes. Distance learning mechanisms such as ‘E-Learning’, enabled by 4IR, are becoming increasingly important in light of COVID-19. 	<ul style="list-style-type: none"> Technological capabilities enhanced by digital platforms Training on legal and regulatory prescripts related to COVID-19 E-Learning platforms.





Source: (The DTI, 2017)

According to qualitative data sources (2020), it was noted that financial costs emanating from several identified change drivers was the leading factor influencing skills development imperatives across organisations. Without adequate financial resources, it becomes increasingly difficult for businesses to remain abreast of changes and advancements due to external factors beyond their control; let alone the ability to source funding for required training and development of current as well as future employees. Though advancement may bring about numerous positive outcomes such as increased competitive advantage and improved safety and work efficiencies, evidently, it can also have several negative implications for entities within the energy and water sector. For instance, let us consider technology and advancement thereof as one such example. On the one hand, technology offers cheaper and more effective solutions for businesses, but on the other, technology has increased the cost burden of operations-intensive organisations, placed more job responsibilities on current workers, and has diminished the need for human capital in some instances when obsolescence of certain skills becomes increasingly apparent as new technologies replace people. In addition, and to further add to such complexities, the Fourth

Industrial Revolution (4IR) has presented a largely unpredictable future, making it increasingly difficult to accurately determine future skills.

In spite of some of the challenges faced, organisations must continue to find innovative and effective ways of reducing the negative impact of change, and embrace the positive aspects as feasibly as possible; much like the philosophy of “future-fit” planning and the more effective identification of future skills as critical aspects for organisations and SETAs in the quest for continuously improving the adequate and appropriate supply of the right skills, at the right time, and for the right purpose.

2.3 POLICY FRAMEWORKS AFFECTING SKILLS DEMAND AND SUPPLY

2.3.1 Major national plans and strategies affecting skills demand and supply

It is important for the EWSETA to continuously monitor and align itself to national prescripts encompassing governmental plans and strategies. In this way, the EWSETA can appropriately respond to skill needs at national level as part of its primary mandate. The table below presents the key national plans and strategies that the EWSETA must align to in order to achieve its core mandate as follows.



Table 7: Key National Plans and Strategies Affecting Skills Demand and Supply in the EW Sector

National Plans and strategies	Sectoral Impact and Measures to Support Plans and Strategies	Implications for Skills Planning
<p>[New] Industrial Policy Action Plan (IPAP)</p>	<p>The fourth industrial revolution (4IR) has brought about significant changes in terms of the way industry conduct operations. From new work processes and procedures to the acquisition of new technology, are just some examples of how influential 4IR has been in this respect. In its tenth iteration, and from a global perspective, the new IPAP seeks to align standards with advancements, thereby situating South Africa within the competitive realm through the reindustrialisation of the local economy. For example, this critical policy aims to link energy to mineral-based solutions such as fuel cells and energy storage as alternatives to petroleum fuels. The IPAP has also extended its focus to include water and sanitation in the form of water industrialisation development, desalination in manufacturing, next generation sanitation cluster development, and development of advanced wastewater technologies in manufacturing. Since industrialisation is fundamentally driven by infrastructural development, both energy and water become absolute necessity when considering the many different applications dependent on these two sectors of the economy. Thus, it is only through inclusive, concerted effort and commitment of the entire country that South Africa will be able to achieve its industrial outcomes, such as the realisation of a dramatically less energy, water, carbon and waste-intensive environment, which maximises efficiency whilst effectively achieving developmental aspirations.</p>	<p>In order to for the economy to realise a less energy, water and carbon intensive country, the most appropriate skills that will effectively respond to this strategy will largely depend on the efficient supply of the right skills at the right time. For example, engineers in both the energy and water sectors continue to be in demand, and are required for a range of different processes and applications, such as energy engineers, electrical engineers, mechanical engineers, engineers to oversee the design of new plant operations in the water sector, concentrated solar power plant process controllers, quantity surveyors; etc.</p> <p>The EWSETA will support the New IPAP by:</p> <ul style="list-style-type: none"> • Identify and increase production of priority occupations (e.g. the supply of professional engineers for effectively supporting industrial development); • Learning programmes should also support innovation skills further enhancing development, especially within the water sector; • Facilitate skills development support aimed at promoting entrepreneurial activities to further enhance development imperatives through increased sharing of knowledge, skills and innovations.
<p>National Infrastructure Plan (NIP)</p>	<p>In the current dispensation, several initiatives are under way to align infrastructure projects to NDP goals in order to maximise efficiency and effectiveness of expenditure on infrastructural development. Over a period of ten years, government has spent approximately R2.3 trillion on infrastructure (the largest contributor to this expenditure being state-owned enterprises, spending R1 trillion in total); however, the amount of expenditure has not translated into desired outcomes due to weak planning capabilities resulting in the nonrealisation of project ideas. Be as it may, the country aims to significantly improve infrastructure planning through the updating of priority projects to</p>	<p>The ongoing need to address infrastructural development issue is now more important than ever. With a relatively low growth rate of the economy, South Africa is faced with many challenging hurdles. In order to overcome these obstacles, not only should there be exponential growth in the rate of infrastructural development in order to achieve the numerous objectives set before the country, but the necessary skills are required in order to realise such requirements. Skills supply must continue to focus on those skills that will drive infrastructural</p>



National Plans and strategies	Sectoral Impact and Measures to Support Plans and Strategies	Implications for Skills Planning
<p>National Infrastructure Plan (NIP) <i>contd.</i></p>	<p>accurately reflect NDP goals. As a critical component of the NIP, the energy and water sector responds directly to Strategic Integrated Projects (SIPs) 8, 9, 10 and 18, which constitute a significant part of infrastructural development across South Africa. As a primary objective, these critical projects aim to deliver much needed electricity, water and sanitation services to areas of the country which remain underserved in this respect, whilst further enhancing services to the existing infrastructure.</p>	<p>development, such as those skills involved with cost-effective and reliable energy supply in the form of renewable energy sources; and increased water supply in the form of an expanded pipeline network which must address outlying areas of the country which are currently underserved.</p> <p>The EWSETA will support the NIP by</p> <ul style="list-style-type: none"> • Identify and increase production of priority occupations to support infrastructure development; • Increase worker participation in various learning programmes through RPL programmes to professionalise and enhance current pool of skills in the sector; • Facilitate skills development support aimed at promoting entrepreneurial activities; • Support the increase of the water networks through supplying skills related to the laying and maintenance of pipes connecting unserved areas. In addition, the SETA should support scientific research in key disciplines enhancing technological advancement, products and related services.
<p>National Skills Development Plan (NSDP)</p>	<p>The NSDP aims to “ensure that South Africa has adequate, appropriate and high-quality skills that contribute towards economic growth, employment creation and social development”. Alignment to this plan means that the EWSETA must continue to effectively and timeously identify occupations in high demand through credible mechanisms, link education and the workplace, and improve the overall workforce level of skills.</p>	<p>The NSDP comprises several outcomes to which the EWSETA aligns itself. Outcomes, for example, those concerned with skilling of unemployed learners to prepare them for the world of work in the fourth industrial revolution, as well as the training of employed workers in order to appropriately adapt to a rapidly developing technological arena, emphasise the role that skills development plays. Furthermore, evidence-based research must continue to be at the fore in terms of planning for and supplying the most relevant skills needed across the sector.</p> <p>The EWSETA will support the NSDP by</p> <ul style="list-style-type: none"> • Identify and increase production of priority occupations;



National Plans and strategies	Sectoral Impact and Measures to Support Plans and Strategies	Implications for Skills Planning
<p>National Skills Development Plan (NSDP) <i>contd.</i></p>		<ul style="list-style-type: none"> • Link education and training to an increased number of workplaces; • Increase worker participation in various RPL learning programmes; • Enhance the research effort through collaborative research partnerships; • Increase support for SMMEs; • Promote sound equity practices; • Enhance M&E activities and overall functionality; • Support national imperatives; • Facilitating skills development support aimed at promoting entrepreneurial activities.
<p>Integrated Resource Plan (IRP) 2018</p>	<p>The IRP 2019 was developed within the context of rapid advancements in energy technology and uncertainty of future impact. Diversification of the energy mix remains at the fore, where coal, nuclear, natural gas, renewable energy, hydro, and energy storage remain key catalysts for driving efficient delivery of energy to the economy. It has become increasingly important for energy to be utilised as efficiently as possible, e.g. by way of energy saving lights in commercial buildings, which is strongly supported by the national energy strategy. The water-energy nexus, as contained within the IRP, describes the impact of drought across the country, and how solutions such as desalination can contribute to curbing the effects of water scarcity. Renewable energy drivers such as wind and solar, can support the energy required to facilitate resource-intensive desalination processes and activities.</p>	<p>The profile of the energy mix to be achieved by 2030 demonstrates the ambitious demands on the energy and water sector, where increasingly water-related technologies systems and advanced renewable energy technologies will be expected to be broadly available. Therefore, the supply of incumbents who are well versed in the development and maintenance of sustainable energy and water resources are of paramount importance.</p> <p>The EWSETA will support the IRP by:</p> <ul style="list-style-type: none"> • Identify and increase production of priority occupations; • Encourage research and development to further enhance technological innovation and application; • Increase worker participation in various RPL learning programmes to maximise formal application of prior knowledge and experience of current workers; • Enhance the research effort through collaborative research partnerships; • Facilitating skills development support aimed at promoting entrepreneurial activities that may unlock new innovations and knowledge for the energy and water sector.



National Plans and strategies	Sectoral Impact and Measures to Support Plans and Strategies	Implications for Skills Planning
Integrated Resource Plan (IRP) 2018 <i>contd.</i>		<ul style="list-style-type: none"> • The EWSETA must enhance skills related to the entire energy mix. For example, the increase the supply of skills and qualifications in fields such as solar PV installations, as well as solar water heating technologies should be prioritised.
White Paper on Post School Education and Training (PSET)	<p>The White Paper on PSET aims to bring about effective synergies between education and training and the world of work. However, it is important to note that basic education plays a critical role in preparing young learners for entering the PSE landscape, which in turn influences the quality of supply of such learners to the sector (i.e. energy and water). Thus, exploring linkages between basic education and PSET could provide a more comprehensive and holistic view of the entire education system as a key driver in the appropriate supply of qualified and skilled learners to the sector.</p>	<p>The PSET landscape can be considered a bridge between education and training and the world of work. However, it is important to remember that learners entering PSET stem from basic education. Thus, synergies between basic education and PSET can be explored for the purpose of potentially identifying opportunities which will better prepare young learners exiting basic education and entering PSET. This will require strong collaborative efforts between key role players in basic education and those located in the PSET landscape.</p> <p>The EWSETA will support the White Paper by:</p> <ul style="list-style-type: none"> • Identify and increase production of priority occupations; • Link education and training to an increased number of workplaces; • Enhance the research effort through collaborative research partnerships.
National Energy Strategy (NES)	<p>The NES prescribes regulations pertaining to energy efficiency and use thereof. These prescripts single out efficient use of energy in new buildings, making it compulsory for construction practices to observe the prescribed energy standards, such as minimisation of energy use by fitting energy efficient bulbs, and other such solutions.</p>	<p>In line with this strategy, skills development should focus on producing skills and enhancing the knowledge and expertise of providing expert consultations and installations of energy efficient solutions.</p> <p>The EWSETA will support the NES by:</p> <ul style="list-style-type: none"> • Identify and increase production of priority occupations; • Encourage research and development to further enhance technological innovation and application; • Increase worker participation in various RPL learning programmes to maximise formal application of prior knowledge and experience of current workers;



National Plans and strategies	Sectoral Impact and Measures to Support Plans and Strategies	Implications for Skills Planning
<p>National Energy Strategy (NES) <i>contd.</i></p>		<ul style="list-style-type: none"> • Enhance the research effort through collaborative research partnerships; • Facilitating skills development support aimed at promoting entrepreneurial activities that may unlock new innovations and knowledge for the energy sector. • The EWSETA may also consider enhancing skills related to the entire energy mix. For example, the increase of the supply of skills and qualifications in fields such as solar PV installations, as well as solar water heating technologies.
<p>National Water Resource Strategy 2 (NWRS II)</p>	<p>The NWRS III had been undergoing public consultation at the time of updating of this SSP and was therefore in its draft phase. However, the NWRS II aims to “ensure that national water resources are managed towards achieving South Africa’s growth, development and socio-economic priorities in an equitable and sustainable manner”. This will require keen water resource management capabilities, as well as the accurate identification of water-related development opportunities and constraints, thereby improving the overall quality and supply of water as a critical resource for the country’s continued development.</p>	<p>The conservation, efficient use and effective management of water plays a critical role in the quest to realise a sustainable future for all. With several areas in a country characterised by water scarcity issues, it is imperative that skills development lends focus to the provisioning of skills that will effectively address the water needs of South Africa. Skills fostering a culture of re-use, recycling and improved catchment systems will go a long way in improving the country’s current water-related challenges.</p> <p>The EWSETA will support the NWRSII by:</p> <ul style="list-style-type: none"> • Identify and increase production of priority occupations; • Encourage research and development to further enhance technological innovation and application in water and wastewater management (e.g. such as innovative off-grid sanitation technology) • Increase worker participation in various RPL learning programmes to maximise formal application of prior knowledge and experience of current workers in identifying sustainable solutions; • Enhance the research effort through collaborative research partnerships to enhance curricula and encourage new innovations; • Facilitating skills development support aimed at promoting entrepreneurial activities that may support the sharing of knowledge and skills in the water sector.

Source: (IPAP | NIP | NSDP | IRP | White Paper on PSET | NES | NWRS II)



2.4 CONCLUSION

The typical major change drivers identified continue to be reflected in this SSP update such as the fourth industrial revolution (4IR), technological advancements/changes, economic affairs, climate change, and water scarcity. However, the invasive and damaging intrusion of COVID-19, of which the real impact is yet to be realised, has made a significant impression as a key change driver.



OCCUPATIONAL SHORTAGES AND SKILLS GAPS



3.1 INTRODUCTION

This chapter provides a narrative around occupational shortages, skills gaps and occupational supply in the energy and water sector. Contextually, the demand for skills is compared with the nature and extent of supply of required skills. Both quantitative and qualitative research methodologies have been employed in preparation of this chapter. Data sources utilised in the development of this chapter are as follows:

- i. **HTFVs and Skills Gaps:** Empirical research conducted by the EWSETA in order to ascertain occupational shortages and skills gaps within the sector. By way of evaluation, research involved field work incorporating both qualitative as well as quantitative methodologies through surveys (quantitative), and in-depth interviews (qualitative).
- ii. **Sectoral Priority Occupations and Interventions List (previously known as the PIVOTAL List):** The SPOL was derived using ‘ranking’ for the prioritisation of identified occupations. It is important to note that HTFVs formed a proxy upon which occupations were deduced in the SPOL and are therefore not synonymous terms.

3.2 SECTORAL OCCUPATIONAL DEMAND

3.2.1 Hard-to-fill-vacancies (HTFVs)

The table below provides a summary of the top ten (10) HTFVs as identified in quantitative WSPs submitted to EWSETA during 2020. It is important to note that none of the apparent HTFVs identified during research were as a result of COVID-19 since such HTFVs existed before the COVID-19 pandemic came to be. As discussed in detail earlier in this SSP, the potential impact of COVID-19 on organisations may cause a shift in demand for certain HTFVs due to retrenchments, downsizing, etc; however, there is no conclusive evidence suggesting this is currently the case (even though this shift has already begun to be realised across identified skills gaps, as seen in subsequent sections of this chapter). Be as it may, it remains a possibility that COVID-19 may in future potentially bring about changes to the scope and type of HTFVs identified within the sector. Should it be the case that such changes are realised, this would likely be in the form of nuances seen within existing occupations rather than entirely new occupations being observed; again, such a hypothesis could only be supported by conclusive evidence.

Table 8: Top 10 Hard-To-Fill Vacancies (HTFVs) - mapped to occupations¹⁰ (based on EWSETA WSP submissions in 2020)

(Mapped To) Occupation Code	(Mapped To) Occupation	Specialisation/ Alternative Title	Gauntily Needed	Occupation Previously In Demand?	Indicated as a HTFV during Stakeholder Interviews?	New / Emerging Occupation in the EW Sector?	Indicated as a HTFV in the Previous SSP?	Reason(s) for apparent HTFV(s)
251201	Software Developer	Software Architect	52	No	No	No	No	Equity Considerations; Lack of relevant experience
		Software Engineer						
121905	Programme or Project Manager	Project Director	33	Yes	No	No	No	Equity Considerations; Lack of relevant qualifications
242101	Management Consultant	Business Support Project Manager	28	No	No	No	No	Equity Considerations; Lack of relevant experience; Slow recruitment processes
		Service Solutions Project Manager						
311905	Industrial Engineering Technician	Robotics and Production Automation Technician	25	Yes	No	No	Yes	Equity considerations

¹⁰ Note the HTFVs listed in the above table are not weighted since the rate of WSP submissions were relatively low; hence the relatively low quantities for HTFVs identified.



(Mapped To) Occupation Code	(Mapped To) Occupation	Specialisation/ Alternative Title	Quantity Needed	Occupation Previously In Demand?	Indicated as a HTFV during Stakeholder Interviews?	New / Emerging Occupation in the EW Sector?	Indicated as a HTFV in the Previous SSP?	Reason(s) for apparent HTFV(s)
642701	Air-conditioning and Refrigeration Mechanic	Air Conditioning and Refrigeration Technician	16	No	No	No	No	Lack of relevant experience
313203	Water Process Controller	Industrial Water Process Controller	14	Yes	Yes	No	Yes	Lack of relevant experience; Lack of relevant qualifications
311301	Electrical Engineering Technician	Electrical Instrument Technician	13	No	No	No	No	Lack of relevant experience; Lack of relevant qualifications
215101	Electrical Engineer	Power Transmission Engineer	11	No	Yes	No	Yes	Equity considerations; Lack of relevant experience; Poor remuneration
		Electric Power Generation Engineer						
		Power Systems Engineer						
		Power Distribution Engineer						
		Illumination Engineer						
		Electrical Design Engineer						
		Electromechanical Engineer						
Control Engineer								
311201	Civil Engineering Technician	Work Site Engineering Technician	8	Yes	No	No	Yes	Lack of relevant experience; Lack of relevant qualifications
		Concrete Tester						
		Geotechnical Laboratory Technician						
		Building Engineering Technician						
		Construction Design Technician						
		Bituminous Binders Tester						
		Civil Engineering Assistant						
		Civil Engineering Materials Tester						
Civil Engineering Laboratory Technician								
Civil Engineering Aggregates Tester								



(Mapped To) Occupation Code	(Mapped To) Occupation	Specialisation/ Alternative Title	Quantity Needed	Occupation Previously In Demand?	Indicated as a HTFV during Stakeholder Interviews?	New / Emerging Occupation in the EW Sector?	Indicated as a HTFV in the Previous SSP?	Reason(s) for apparent HTFV(s)
215102	Electrical Engineering Technologist	Power Engineering Technologist	6	No	Yes	No	Yes	Lack of relevant experience
		Illumination Engineering Technologist						
		Electromechanical Engineering Technologist						
		Control Engineering Technologist						

3.2.2 Skills gaps

The table below provides a summary of the top ten (10) skills gaps in the EW sector at major group level.

Table 9: Skills gaps at major group level (EWSETA WSP submissions - 2020)

Skills Gap	OFO Major Group Level								
	Managers	Professionals	Technicians/ Associate Professionals	Clerical	Service/Sales	Skilled Agricultural/ Related	Plant/ Machine Operators	Elementary	Total
Technical (job-specific)	4	21	16	1	1	11	5	4	63
Financial management	11	8	3		1				23
Occupational health & safety skills	3	3	3		2	6		1	18
Advanced IT and software	3	10	2		1				16
Computer literacy	4	1	3	4	1			2	15
First-aid		1		2	3	4	1	1	12
Problem-solving		3	5	1		2		1	12
Leadership	8	3							11
Management	7	1	3						11
Project management	6	5							11
Grand Total	58	67	43	24	16	23	9	14	254



For the EW sector, skills gaps refer to skills deficiencies in employees or their lack of specific competencies in order to adequately perform job tasks at required standards. As the most cited skills deficit across submitting firms in 2020, the lack of “technical” skills points to job-specific related issues amongst workers; most notably amongst those workers falling within major groups 2, 3 and 6 (i.e. professionals, technicians and skilled workers respectively). According to qualitative interviews conducted with sector stakeholders, “disaster management” and “digital skills” are fast becoming important future skills in light of COVID-19. Thus, together with the sector, the EWSETA must continue to roll out programmes geared towards the technical and professional development of the workforce, which refers directly to NSDP Outcome 3, improving the level of skills in the South African workforce. Through diligent skills planning and implementation of relevant and effective skills interventions such as bursaries and work-integrated learning opportunities this outcome is being incrementally achieved. Financial management and occupational health and safety are becoming increasingly important, especially considering the disruptive realities still unfolding as a result of the obtrusive COVID-19 pandemic. As far as skills are concerned, organisations need to remain prepared and “future-fit” in order to more efficiently and effectively adapt to changing economic and social conditions whilst mitigating associated risk implications. Qualitative interviews conducted by the EWSETA have already shown effective risk mitigation as a key strategy in adapting to unpredictable macro-level change drivers.

The top three (3) skills gaps at occupational level¹¹ were related to “technical/job specific occupations (e.g. Electrical Engineering Technician); “financial management” (e.g. Operations Manager: Production); and Occupational Health & Safety skills (e.g. Electrician).

3.3 EXTENT AND NATURE OF SUPPLY

3.3.1 State of education and training provision in South Africa

In recent times, South Africa has had to not only contend with the arrival of the global pandemic known as the Coronavirus Disease (or Covid-19), but also faced a negative downgrade of the Government of South Africa’s long-term foreign-currency and local-currency issuer ratings to ‘Ba1’ from ‘Baa3’ during March of 2020, where a ‘Ba1’ rating is viewed as being a significant credit risk rating for the country. This negative outlook affects education and training, where funds previously designated for skills development may be diminished due to a reduction in available financial resources. With dwindling growth prospects, the local economy must as a matter of urgency find sustainable, long-term solutions to addressing the many challenges faced by the country. With skills development being no exception, the post-school education and training (PSET) landscape ought to prioritise establishing effective synergies with basic education for more appropriately preparing learners for the challenging and dynamic world of work in trying economic times. For instance, the population of young persons aged between 15-24 years not in employment, education or training (NEET) decreased slightly by 0.9% to 32.3% (3,3 million) in the second quarter of 2019. Comparably, those youth aged between 15-34 years accounted for around 40.3% of the NEET population, representing a 0.3% decrease during the same period (Department of Women, Youth and Persons with Disabilities, 2020). As it stands, many young people aged 15-24 years forming part of the NEET population have not completed secondary education (approximately 46.3%, or 3.1 million), which brings into question if whether or not the education system is in fact producing the required supply of learners who are ready and willing to embark on post-school education and training.

¹¹ The top ten (10) skills gaps at occupational level can be found as an annexure at the end of this SSP document.



At present, there exist 26 public higher education institutions (HEIs), 50 Technical and Vocational Education and Training colleges (TVETs), 123 private HEIs, and 279 private colleges. Other entities forming a critical part of the PSET system include: Community Education and Training Colleges (CETCs), private TVET colleges, the National Skills Authority (NSA), the Department of Higher Education and Training (DHET), Sector Education and Training Authorities (SETAs), and Regulatory bodies responsible for qualifications and quality assurance, namely, the South African Qualifications Authority (SAQA) and the Quality Councils (QCs).

From a basic education viewpoint, and with respect to public education, there are just over 23,700 public schools accounting for roughly 12.3 million learners in South Africa. During 2016, around R230 billion was spent on education by government in the country, where pre-primary and primary accounted for around 44% of the education cost bill (R101 billion), with secondary education constituting the difference of R129 billion (StatsSA, 2019), which strongly indicates the level of commitment demonstrated by government with respect to basic education imperatives. With such commitment, it remains that investment into basic education, as well as the PSET system, should be geared towards

maximum return of investment by establishing the necessary synergies between the two landscapes in order to promote cohesion, and more appropriately equip learners for the world of work. Furthermore, and more broadly, the appropriate alignment of skills to work opportunities, underpinned by the effective rehabilitation of South Africa's economic climate must be at the fore of planning at all levels of the economy.

3.3.1.1 Matric Pass Rates for 2019

It was reported that a pass rate of 81.3% was achieved nationally for 2019, up from a previous 78.2% in 2018, with Gauteng producing the highest number of Bachelor's passes, whilst Western Cape presented the highest number of distinctions. The class of 2019 accounted for an eight percent (8%) increase in Bachelor's passes from the previous year, whilst distinctions increased by two percent (2%). A majority of learners (65%) passed with a Bachelor's or a diploma, which translated into 337,730 learners who became eligible to study at institutions of higher learning (TheSkillsPortal, 2020). Furthermore, 78,984 matric learners could opt to study at a TVET college (Department of Basic Education, 2020). The number of learners who qualified to enrol for Bachelor's programmes at HEIs improved significantly. The table below presents a provincial breakdown of results in this respect as follows:

Table 10: Comparison of admission to Bachelor's programmes (2018-2019)

Province	2018			2019		
	No. Wrote	No. Achieved with Admission to Bachelor	Percentage (%) Achieved with Admission to Bachelor	No. Wrote	No. Achieved with Admission to Bachelor	Percentage (%) Achieved with Admission to Bachelor
Eastern Cape	65 733	18 001	27,4	63 198	20 419	32,3
Free State	24 914	9 333	37,5	25 572	9 992	39,1
Gauteng	94 870	41 410	43,6	97 829	43 494	44,5
KwaZulu Natal	116 152	38 571	33,2	116 937	44 189	37,8
Limpopo	76 730	17 999	23,5	70 847	19 022	26,8
Mpumalanga	44 612	13 199	29,6	43 559	14 228	32,7
North West	29 061	9 449	32,5	26 819	9 964	37,2
Northern Cape	9 909	2 589	26,1	9 138	2 769	30,3
Western Cape	50 754	21 492	42,3	50 404	21 981	43,6
National	512735	172043	33,6	504303	186058	36,9

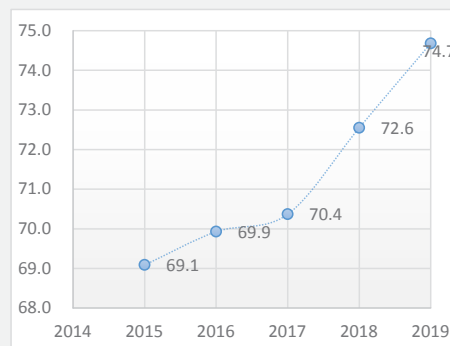
Source: Adapted from (Department of Basic Education, 2020)



The below presents learners’ performance with respect to ‘gateway’ subjects between 2015-2019 (based on the 30% pass mark level and above).

Table 11: Matric Learners’ performance (%) with respect to ‘gateway’ subjects between 2015-2019 (based on the 30% pass mark level and above)

Subjects	2015	2016	2017	2018	2019
Accounting	59,6	69,5	66,1	72,5	78,4
Agricultural Science	76,9	75,4	70,4	69,9	74,6
Business Studies	75,7	73,7	68,0	64,9	71,0
Economics	68,2	65,3	71,0	73,3	69,3
Geography	77,0	76,5	76,9	74,2	80,5
History	84,0	84,0	86,0	89,7	90,0
Life Sciences	70,4	70,5	74,4	76,3	72,3
Mathematical Literacy	71,4	71,3	73,9	72,5	80,6
Mathematics	49,1	51,1	51,9	58,0	54,6
Physical Science	58,6	62,0	65,1	74,2	75,5
Overall Average	69,1	69,9	70,4	72,6	74,7



Source: adapted from (Department of Basic Education, 2020)

As noted in the table above, there was a marked improvement in the gateway subjects, including Mathematics and Physical Science, with a performance improvement from 49.1% to 54.6%, and 58.6% to 75.5% respectively between 2015 and 2019. Equally notable was the sustained increase in the overall average performance across gateway subjects over the same period (i.e. 69,1% - 74,7%).

In light of the above, the PSET system must ensure that learners are appropriately aligned to embarking on programmes which respond to the immediate and future needs of the sector, which can only be achieved by encouraging incumbents to undertake education and training in fields critical to the economy as a means of addressing the broader needs of industry and overall productivity.

3.3.2 Supply challenges experienced by employers

According to stakeholders interviewed as part of qualitative research currently being carried out by the EWSETA, many cited several reasons for some of the challenges experienced with respect to the availability of important skills at the required time. Examples of some of the related challenges experienced by interviewed employers can be attributed to the following considerations:

1. Lack of suitably qualified candidates appeared to be the most cited reason for supply related challenges experienced by employers;
2. Geographic location was cited as being unsuitable for several eligible candidates;
3. Lack of the required level and type of experience presented challenges for several employers; and
4. Scarcity of critical skills also featured amongst identified challenges.

It is important to note that the list of challenges presented above is non-exhaustive as other important reasons, such as affordability issues and equity considerations, played a critical role in determining related challenges as cited by employers. The PSET system must therefore take heed and respond accordingly, especially when considering challenges such as the lack of qualified candidates where formal qualifications must be administered by designated higher education institutions. Furthermore, experiential learning interventions such as work-based learning programmes (e.g. Internships and Apprenticeships) must provide a basis for additional experience to be acquired by incumbents. Appropriate skill matching at this level is of paramount importance and the EWSETA must strive to make provision for an education and training mechanism geared towards successful programme implementation



at all levels and across relevant learning interventions. It is for this very purpose the National Skills Development Plan (NSDP) articulates specific, clear outcomes for achieving such a goal and realised through effective implementation of critical task¹², which:

1. Ensure the maximum participation of organisations in the effective identification of skill needs and acquisition, especially those directly linked to the workplace (**NSDP Outcome 1**, particularly **sub-outcomes 2, 3 and 4**; **Outcome 2**; and **Outcome 3**) – linked to **Priority Action No. 1, 2, 3, 4, 5, 6 and 7**.
2. Ensure the appropriate matching of skills to jobs across the energy and water sector through research (**NSDP Outcome 1**, particularly **sub-outcomes 2, 3 and 4**; **Outcome 2**; **Outcome 4**, with specific reference to **sub-outcome 2**; **Outcome 6**, particularly **sub-outcome 1**; and **Outcome 7**) – linked to **Priority Action No. 1, 2, 3, 4, 6 and 7**.
3. Ensure the appropriate allocation of funds through discretionary grant funding (**NSDP Outcome 1**, with emphasis on **sub-outcomes 1 and 3**; **Outcome 3**; **Outcome 4**, especially **sub-outcome 2**; **Outcome 5**; **Outcome 6**; **Outcome 7**; and **Outcome 8**) – linked to **Priority Action No. 1, 2, 3, 4, 5, 6 and 7**.
4. Ensure the appropriate level of support to organisations in attempt to enhance the overall quality of WSP/ATR submissions as a means of identifying occupations in high demand (**NSDP Outcome 1**, particularly **sub-outcomes 2, 3 and 4**; **Outcome 2**; **Outcome 3**; and **Outcome 6**) – linked to **Priority Action No. 1, 2, 3, 4, 5, 6 and 7**.
5. Ensure sufficient and appropriate level of career development services support in the form of, e.g. material and direct engagements, through career guidance initiatives offered to learners (**NSDP Outcome 8**) – linked to **Priority Action No. 1, 2, and 4**.

Note how outcomes and/or sub-outcomes as prescribed in the NSDP can potentially be addressed by the effective implementation

of the above-listed functions and tasks when aligned to the priority actions of the EWSETA (see chapter 6 of this SSP). In lieu of the above, it is incumbent of the EWSETA to ensure the appropriate allocation of resources to planning, implementation and reporting processes in order to effectively and efficiently carry out functions, tasks and activities aimed at the achievement of ambitious prescripts articulated in the NSDP.

3.3.3 Extent of occupational supply in the sector

3.3.3.1 Supply from Higher Education Institutions (HEIs)

With 26 public HEIs currently registered in the PSET system, differentiated by 11 general academic universities, nine comprehensive universities and six universities of technology, the EWSETA remains committed to finding sustainable and innovative ways of improving synergies in the quest to educate and prepare learners for the challenging and fascinating world of the energy and water sector. Through public universities, faculties such as Science, Engineering, Technology, and Management provide learners with the learning pathways required to align to the various prerequisites for entering disciplines anchored in energy and water-related industries. When considering the formal approach to education and training offered across a multitude of disciplines, HEIs can be directly linked to outcomes prescribed in the National Skills Development Plan (NSDP), such as **NSDP Outcome 1 (especially sub-outcomes 3 and 4)**, which respond to the need for education and training in targeted priority occupations; and **Outcome 3**, which emphasises the overall improvement of the level of skills amongst workers, where formal education and training can serve to enhance or formalise level of knowledge and competencies. Energy and water are critical for sustainability of life, and by virtue, the nature of the energy and water sector is such that respective skills typically cut-across most, if not all, other sectors. In other words, sectors and industries at least in some way depend on energy and water resources for continuity, growth and/or prosperity. In

¹² The above-listed tasks align to the detailed priority actions of the EWSETA presented in Chapter 6 of this sector skills plan.



2018, a total of 1,085,568 learners enrolled for university studies, as reported by public HEIs (DHET, 2020). This represented an increase of 48,584 learners (or 4,69% increase) when compared with the total number of enrolments during the previous year (DHET, 2020). Demographically, most learners who enrolled during the period under review were African, with the largest share of total enrolments being represented by females.

Across all population groups, females constituted the majority of enrolments within public universities during 2018. Coloured females accounted the highest proportion of females represented within a population group, with a 63,29% share. Amongst African learners enrolled during 2018, females represented the majority of (59,08%) when compared with African males (40,92%). White learners showed the smallest variance between males (42,85%) and females (57,15%) enrolling into HEIs during the same period, with a difference of 14,3%.

In terms of respective major fields of study, public HEIs reported that most learners enrolled in the Science, Engineering and technology (SET) fields of study (320,671 learners). This is unsurprising, as the draft National Plan for Higher Education in South Africa previously emphasised the need for a 'shift' between fields of study in favour

of business and commerce and science, engineering and technology (DHET, 2001). In other words, public institutions were actively encouraged to promote enrolment into these faculties, considering the strong need to necessitate an economy rich with crucial and essential skills within the foreseeable future (DHET, 2020).

The accompanying figure depicts a summary of learner enrolments into the major fields of study between 2009 and 2018 (DHET, 2020). Note how SET faculties represented a sustained increase in number of learner enrolments over the years (DHET, 2020). According to data, most learners in public HEIs enrolled in the SET fields of study (320,671, or 29.5%), followed by Business and Management (283,194, or 26.2%), and Other Humanities (267,553 or 24.6%). In comparison, Education accounted for the lowest number of enrolments (214,151, or 19.7%). Below is a summary of the proportions of learners enrolled for each qualification type in public HEIs during 2018.

During the 2018 academic calendar, undergraduate degrees (53.9%) had the highest number of enrolments, followed by undergraduate certificates and diplomas (26.8%), and postgraduate below Master's level (5.6%). Doctoral degrees, occasional students, and advanced diplomas and postgraduate

Figure 12: Number of students enrolled in public HEIs by major field of study (2009 – 2018)

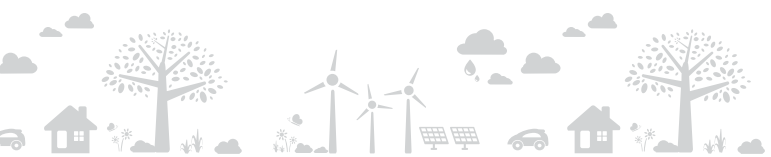
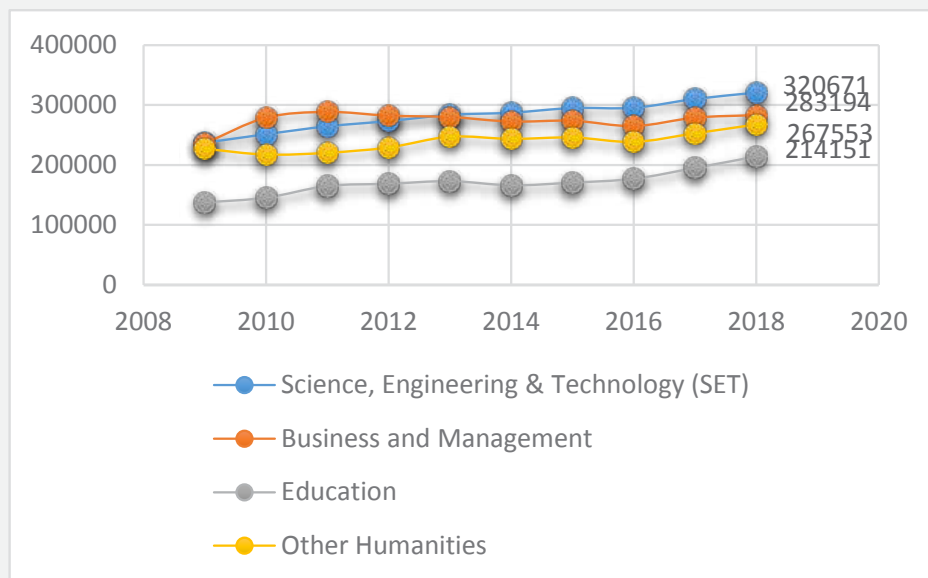
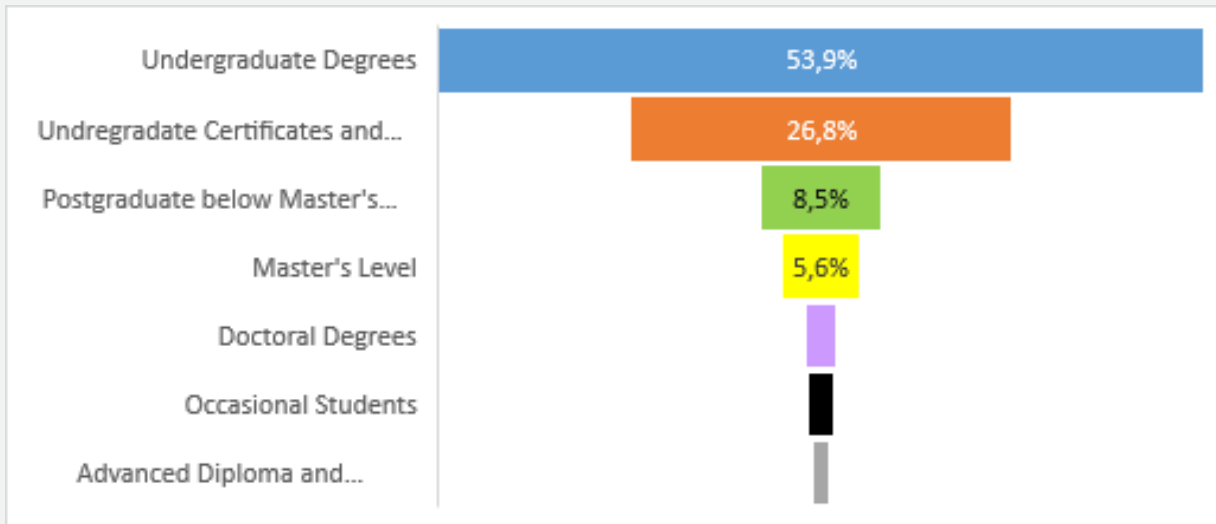


Figure 13: Proportions of learners enrolled for each qualification type in public HEIs in 2018



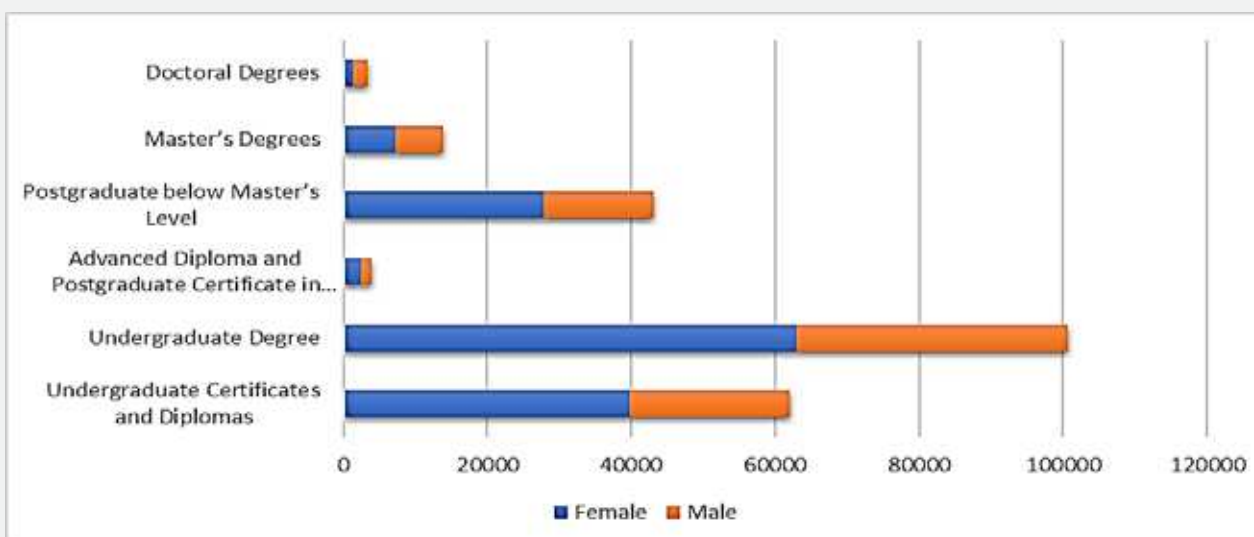
certificate in education enrolled 2.2%, 1.9% and 1.1% respectively. It is equally important to note that there were a total of 208,661 learners enrolling for public HEI studies for the first time during the same period, accounting for 19.2% of total enrolments in 2018 (DHET, 2020).

With respect to completion of studies at public HEIs, a total number of 227,188 learners successfully completed studies across major fields of study, which was around 7.7% higher than the number of graduates previously reported. Furthermore, data revealed that of the total number of completions, the highest number of graduates completed fields of study in SET (65,211); followed by Business and Management (60,458); Other

Humanities (50,868); and Education (50,651) during the same period (DHET, 2020). The qualification type with the highest number of completions reported during 2018 were undergraduate degrees, accounting for 100,700 (44.3%) completions; followed by graduates in undergraduate certificates and diplomas with 64,019 (27.3%) completions; and postgraduates below Master's level at 43,190 (19.0%) completions respectively. Notably, there was an increase in the number of graduates for all qualification types between 2017 and 2018 (DHET, 2020).

The figure below presents the number of graduates from public HEIs with respect to gender and qualification type.

Figure 14: Number of graduates from public HEIs - gender and qualification type



Source: Adapted from (HEMIS, 2018)



The data revealed that most completions were represented by females (almost two thirds at around 63%), whilst males represented roughly 38% of completions across the various qualification types. The qualification with the highest number of completions, i.e. undergraduate degrees, also accounted for the highest proportion of completions by females (62%). Males accounted for the highest proportion of completions only in Doctoral studies (57%) as compared to females (43%). This finding may be attributed to the fact that females represented the highest number of enrolments in the same period. Be as it may, it is encouraging to note a shift with respect to gender representation in favour of female learners when considering the need for gender equality within the PSET landscape.

3.3.3.2 Supply from Private Higher Education Institutions (PHEIs)

In terms of private HEIs (PHEIs), institutions of this nature are not permitted to offer higher education in South Africa as of January 2001 unless registered with the Department of Higher Education and Training, in accordance with the Higher Education Act, 1997 (Act No. 101 of 1997) ("the Act"). PHEIs offer higher education, that is, programmes equivalent to those provided by traditional Universities, Comprehensive Universities and Universities of Technology (UOTs) that fall on the Higher Education Qualifications Sub-framework (HEQSF). Thus, PHEIs can be linked to **NSDP Outcome 1 (particularly sub-outcomes 3 and 4); and Outcome 3.**

The total number of enrolments and completions registered across PHEIs in South Africa during 2018 are depicted below.

Table 12: Total number of enrolments and completions registered across PHEIs in South Africa (2018)

Qualification Type	Enrolments	Completions
Higher Certificate	34409	7790
Advanced certificate	3232	393
Diploma (240-Credits)	6441	1905
Diploma (360-Credits)	55495	7297
Advanced Diploma	2801	891
Postgraduate Diploma	6498	1008
Bachelor's degree (360-Credits)	66697	11068
Bachelor's degree (480-Credits)	10937	1207
Honours Degree	4337	1394
Master's Degree	6688	988
Master's Degree (Professional)	0	0
Doctoral Degrees	363	31
Doctoral Degrees (Professional)	0	0
Total	197898	33972

Source: Adapted from (HEMIS, 2018)

During the 2018 period, PHEIs recorded a total of 197,898 enrolments, and 33,972 completions. The highest number of graduates obtained a Bachelor's degree worth 360 credits (11,068). This was followed by learners who completed Higher Certificates (7,790), and then by those completing Diplomas at 360 credits (7,297).



With comparatively significant numbers, it is evident that PHEIs play a critical role in supplying skills, thereby making a noteworthy contribution to the overall PSET landscape and overall skills supply to occupations in South Africa.

3.3.3.3 Supply from TVET Colleges

The primary strategic objective for public TVETs is to “increase access into and improve success in programmes that lead to intermediate and high-level learning (DHET, 2020). Such

skills create opportunity for learners to have direct access to workplace-based learning opportunities, and the subsequent possibility of employment as an ultimate outcome. Therefore, TVET Colleges can be linked to **NSDP Outcome 1 (sub-outcome 3 and 4); Outcome 2; Outcome 3; Outcome 4 (sub-outcome 2); and Outcome 5 (sub-outcome 1).**

The table below provides a summary of enrolments for 2018 by qualification category¹³, population group and gender as follows:

Table 13: Enrolment count of students in TVET colleges by qualification category, population group and gender (2018)

Qualification category	African	Coloured	Indian/Asian	White	Unspecified	Female	Male	Total
NC(V)	125 734	5 057	113	292	16	83 019	48 193	131 212
Report 191 (N1-N6)	449 336	27 155	1 197	4 406	81	269 432	212 743	482 175
Occupational Qualifications	13 501	6 255	31	319		13 565	6 541	20 106
Other	14 290	8 097	110	833	25	12 471	10 884	23 355
PLP	251	33	1			120	165	285
Total	603 112	46 597	1 452	5 850	122	378 607	278 526	657 133

Source: Adapted from (TVETMIS, 2018)

In 2018, public TVET colleges in South Africa accounted for 657,133 learner enrolments across 253 registered campuses for delivery of qualifications, part-qualifications and other programmes (a decline of 4.5% when compared with 2017). Be as it may, an overall increase of 9,137 enrolments into Occupational Qualifications was realised during the same period, with only 29 TVETs offering these qualifications at the time (DHET, 2020). A total of 603,112 (91.78%) of enrolments constituted African learners, followed by coloured (46,597 or 7.09%), White (5,850 or 0.89%) and Indian/Asian (1,452 or 0.22%) learners. More than half of the enrolments were female learners (378,607), with males constituting 278,526 enrolments.

With respect to qualification category, Report 191 (N1-N6), accounted for the highest number

of enrolments during 2018 (482,175). Also known as ‘NATED’ programmes, these part-qualifications are offered at six ‘N’ levels for Engineering studies, and three to four levels for Business and general studies. Being the next highest number of enrolments by qualification category, NC(V) accounted for 131,212 enrolments in the same period, where the NC(V) qualification has a total of 19 vocational programmes across three levels, i.e. levels 2, 3 and 4 of the national Qualifications Framework (NQF) being offered at TVETs. With 285 learners enrolling for the Pre-Vocational Learning Programme (PLP), this intervention (piloted in 2018) aims to prepare students for access into specific vocational or occupational learning pathways at TVET colleges such as the NC(V) programmes, N1 Engineering studies, and occupational programmes at NQF levels 2 to 4 (DHET, 2020).

¹³ • Report 191 refers to the NATED programmes, N1 to N6, Non-National Certificate and N Diploma. It is a part-qualification.
 • NC(V) refers to the National Certificate (Vocational) Levels 2-4.
 • “Occupational Qualifications” refer to qualifications associated with a trade, occupation or profession resulting from work-based learning and consisting of knowledge unit standards, practical unit standards, and work experience unit standards.
 • “Other” refers to all other programmes offered in TVET colleges, for example skills and short courses (accredited or not) as well as enrolment into higher certificates. It also includes programme enrolment numbers that were misreported in 2018.
 • PLP refers to a Pre-Vocational Learning Programme which is a foundational learning programme and not registered on the NQF.



The table below provides a summary of the number of learners in TVET colleges who registered, wrote and completed the NC(V) Level 4 qualification as follows:

Table 14: Number of learners in TVET colleges who registered, wrote and completed the NC(V) Level 4 qualification¹⁴

NC(V) Level Programmes	Total			
	Number registered	Number wrote	Number completed	Completion rate (%)
Civil Engineering and Building Construction	1280	1134	591	52.1
Electrical Infrastructure Construction	2742	2581	1062	41.1
Engineering and Related Design	2721	2446	1133	46.3
Management	883	791	521	65.9
Process Plant Operations	102	93	54	58.1

Source: Adapted from (DHET, 2020)

It was reported for 2018 that a total of 11,837 TVET college learners completed NC(V) Level 4 qualification examinations across 18 different learning programmes (DHET, 2020). The highest number of completions was obtained for Office Administration (not shown in the table above), followed by Engineering and Related Design (1,133 completions), Electrical Infrastructure Construction (1,062), and Hospitality (815), also not shown in the table above.

3.3.3.4 Supply by CET Colleges (CETCs)

At present, there are nine CETCs in South Africa, i.e. one for each province (Helen Suzman Foundation, 2019). Community Education and training Colleges (CTECs) were established as a separate subsector within the PSET system in order to provide a pathway to other PSET institutions, such as TVET colleges and universities, particularly for the youth and adult population who do not have access to basic education and further education and training. This subsector also seeks to address adult illiteracy, where the rate of literacy in South Africa in 2017 was estimated to be approximately 87.05% (World Bank, 2019), which indicates the percentage of people ages 15 and above who have sufficient reading and writing skills. There are numerous causes leading to illiteracy, such as lack of access to basic education, abject poverty, learning disabilities, and so forth. Thus, CETCs have a very critical role to play within the PSET landscape as a supporting structure underpinning the broader vision of education and training in South Africa,

outcomes of which can be directly linked to **NSDP Outcome 3**; and **Outcome 5 (sub-outcome 2)**. However, CETCs do not operate without their own set of challenges since they are mostly dependant on reliable access to existing infrastructure; hence the need for an overwhelming majority of CETCs to be housed within pre-existing public schools by way of Memoranda of Understanding (MOUs) with institutions (DHET, 2020). In addition, CETCs typically lack full-time lecturing staff, which further exacerbates inherent issues. In spite of the challenges, CETCs in 2018 enrolled a total of 100,286 learners into colleges, where the highest number of enrolments were recorded in KwaZulu-Natal (22,535), Limpopo (19,551), Gauteng (16,625), and Eastern Cape (12,672) CET Colleges, where the majority were enrolled for GETC: ABET Level 4 (DHET, 2020). With respect to learning content, CTECs offered a number of programmes within GETC: ABET Level 4 during 2018 such as Mathematics & Mathematical Sciences, Natural Sciences, and Technology. Completion rates were encouraging, as 66.1% of learners enrolled for GETC: ABET Level 4 at national level successfully met the requirements for completing respective learning programmes.

3.3.3.5 A word on Private Colleges (PCs)

Private Colleges (PCs) are governed by the Continuing Education Act, 2006 (No. 16 of 2006), which makes provision for PCs to be registered through the DHET for the purpose of offering qualifications or part-qualifications that

¹⁴ This table does not contain an exhaustive list of all NC(V) level 4 qualifications enrolled and completed across public TVET colleges in 2018.



are registered on the National Qualifications Framework (NQF) at Levels 1 – 4. The intended outcomes of these institutions can therefore be linked to NSDP Outcomes aimed at skills provision such as **NSDP Outcome 3**; and **Outcome 5 (sub-outcome 2)**, although PCs may also offer high-level qualifications, such as diplomas and degrees. Based on an annual survey conducted by the DHET, during 2018 Private Colleges accounted for 219,837 enrolments. Of these, most enrolments were for Report 191 programmes (98,466) which included levels N1 – N6, followed by Report 550/NSC (68,102). The number of completions for the same year stood at 31,844, where the highest number of completions were

report for Report 191 (N3), Report 191 (N6), and NC(V) Level 4 with 12,297; 19,354; and 193 completions respectively (DHET, 2020). Interestingly, the number of students in PCs who registered, wrote and completed part qualifications for Engineering Studies (Report 190/1 N1 to N3) in 2018 had an average pass rate of 61.1% (DHET, 2020).

3.3.4 SETA-supported learning programmes

The following section provides a summary of the number of workers and unemployed learners registered and certificated in SETA-supported programmes between 2016/17 and 2018/19 for Learnership¹⁵, Internship, and Skills programmes.

Table 15: SETA-supported programmes between 2016/17 and 2018/19

Year	Registered				Completed/Certificated			
	Learnerships	Internships	Skills Programmes	Total Registered	Learnerships	Internships	Skills Programmes	Total Completed
2016/17	101447	17216	131017	249680	58080	6777	116141	180998
2017/18	111681	12935	144531	269147	48002	6496	122979	177477
2018/19	105548	15482	150674	271704	61841	6123	144460	212424

Source: Adapted from (DHET, 2020)

According to the data, a total of 271,704 learners were registered for SETA-supported programmes during the 2018/19 period, representing a slight increase of just under 1% in total registrations when compared with the previous year (2017/18). On the other hand, a notably higher proportion of certificated learners was recorded in 2018/19 compared to 2017/18, with an overall increase of almost 20% (19.69%), representing 34,947 more learners completing in 2018/19 compared to 2017/18.

With respect to artisanal training, SETA-supported trades recorded a total of 29,982 learners being registered during 2018/19, with the Gauteng province reporting the highest number of registrations across the nine provinces of South Africa, totalling 8,544 registrations (DHET, 2020).

With specific reference to the Energy and Water Sector Education and Training Authority (EWSETA), the following was noted for the 2018/19 period as captured in the table below:

Table 16: EWSETA-supported programmes (2018/19)

Learner type	Registered					Completed/Certificated				
	Learnerships	Apprenticeships	Internships	Skills Programmes	Total Registered	Learnerships	Apprenticeships	Internships	Skills Programmes	Total Completed
Workers	550	-	-	1803	2353	1074	-	-	2213	3287
Unemployed Learners	2306	-	189	307	2802	1692	-	31	417	2140
Artisanal	-	1165	-	-	1165	-	1560	-	-	1560

Source: Adapted from (DHET, 2020)

¹⁵ The category "Learnerships" refers to a learning programme that leads to an occupational qualification or part qualification, and includes an apprenticeship and cadetship. The data above excludes registrations and certifications in trade related programmes, which form part of the official list of artisan occupations as per Schedule 2 Gazette 35625, 31 August 2012.



According to DHET (2020), the highest number of learners who registered for EWSETA programmes were unemployed learners (2,802) during 2018/19. In contrast, the highest number of completions/certifications were represented by employed learners (3,287) during the same period.

3.4 SECTORAL PRIORITY OCCUPATIONS

The EWSETA typically makes use of a 10-step methodology when developing its sectoral priority occupations and interventions list (SPOL). There are two cardinal values informing the quantities indicated in the SPOL, namely, (1) the quantity values indicated by the sector through submission of WSPs/ATRs to the EWSETA in 2020; and (2) the quantity values that the EWSETA plans to support. The table below provides a summary of the EWSETA 10-step sectoral priority occupations list (SPOL) methodology.

Table 17: The EWSETA 10-step Sectoral Priority Occupations List (SPOL) Methodology

Step	Action
1	Identify all Occupations in WSP submissions.
2	Rank order, from highest to lowest, by number of times each occupation has been cited by employers (which will therefore be the quantity needed by the sector).
3	Identify specialisations as indicated by employers and "map" each specialisation to the correct occupation in line with the published OFO list (ensuring correct specialisation name/ alternate title, aligned to correct occupation name and code).
4	Identify "missing" specialisations and refer to published OFO list by identifying all specialisations under each of the occupations containing "missing" specialisations and add these to the list of occupations.
5	Identify all specialisations which do not meet the following criteria and omit/remove from the HTFVs list: must either have been cited in latest WSPs submitted for the current year; and/or cited in the current labour market intelligence survey; and/or cited during most recent stakeholder interviews/ workshops/ interactions; AND must be relevant to the EW sector (e.g. relevant to chapter 2 national strategies and plans such as SIPs). In the case of new/emerging occupations, these MUST have been cited in the WSP submissions.
6	Identify the top 20-30 occupations for further analysis. (Steps 6 to 10 refer to "weighting" and "prioritisation" algorithms employed when most appropriate)
7	Apply weighting formula where appropriate and determine ranking by quantity (i.e. highest to lowest quantities).
8	Apply prioritisation algorithm (using a set of criteria, e.g. verification of whether or not occupation: is listed in latest OIHD List; and/or cited in labour market intelligence survey; and/or was cited in stakeholder interviews/ interactions; and/or is directly referred to in chapter 2 of SSP e.g. SIPs; and/ or is a new/ emerging occupation in the sector). Each criterion in the set of criteria carries a "score" (accumulated scores are calculated for each of the top 20-30 occupations, and assigned a final "score", which largely influences the ranking i.e. prioritisation of each occupation).
9	"Shift" rank order of each occupation upward according to the criteria listed above (i.e. the higher the number of criteria within the set of criteria an occupation complies with, the higher its relative ranking/prioritisation relative to other listed occupations).
10	List, from highest priority to lowest, the top 10 ranked occupations.

Source: Adapted from (EWSETA, 2019)

Since skills demand is sector-driven, the EWSETA strives to respond to sectoral needs based on sector inputs. According to data sources, the EW sector has evolved over time with respect to nuanced skill needs largely determined by notable changes at macro and micro levels. Take for instance the advent of technology, 4IR and the COVID-19 pandemic; each of which bear great influence when considering skills planning and implementation efforts. Thus, it is imperative that the EWSETA

continues to engage the sector at *intervention* level in spirit of continuous improvement of quality and quantity of skills aimed at addressing workforce requirements, whilst maintaining strong synergies between the ever-evolving drivers of the sector landscape and planning efforts. The table below presents the EWSETA Sectoral Priority Occupations and Interventions List (previously referred to as the PIVOTAL List). Listed interventions were informed through analysis of national strategies



and plans; analysis of WSP submissions; consultation with various secondary data sources such as the National Career Advice Portal and SAQA databases; external stakeholder interactions; as well as through

internal engagements with respective EWSETA departments. Finally, the list was reviewed by the EWSETA Governance Committee, and subsequently recommended to the EWSETA Board for approval.

Table 18: Top 10 Sectoral Priority Occupations and Interventions List (SPOL)¹⁶ - previously referred to as the PIVOTAL List

Period	Occupation Code	Occupation	Specialisation / Alternative Title	Intervention Planned by the SETA	NQF Level	NQF Aligned Y/N?	Quantity Needed	Quantity to be Supported by SETA
2021/22	2019 - 121905	Programme or Project Manager	Project Director	Bursary: Advanced Certificate in Project Management	6	Y	33	100
				Bursary: Advanced Diploma in Project Management	7	Y		
				Bursary: Bachelor of Commerce in Project Management	7	Y		
				Bursary: Postgraduate Diploma in Project Management	8	Y		
				Bursary: Master of Science in Project Management	9	Y		
				Skills Programme: Project Management*	4	Y		
	2019 - 215101	Electrical Engineer	Power Transmission Engineer	Bursary: National Diploma in Electrical Engineering	6	Y	11	100
				Bursary: Bachelor of Engineering Technology in Electrical Engineering	7	Y		
			Electric Power Generation Engineer	Bursary: National Diploma in Electrical Engineering	6	Y		
				Bursary: Bachelor of Engineering Technology in Electrical Engineering	7	Y		
			Power Systems Engineer	Bursary: National Diploma in Electrical Engineering	6	Y		
				Bursary: Bachelor of Engineering Technology in Electrical Engineering	7	Y		
			Power Distribution Engineer	Bursary: National Diploma in Electrical Engineering	6	Y		
				Bursary: Bachelor of Engineering Technology in Electrical Engineering	7	Y		
			Illumination Engineer	Bursary: National Diploma in Electrical Engineering	6	Y		
				Bursary: Bachelor of Engineering Technology in Electrical Engineering	7	Y		
Electrical Design Engineer			Bursary: National Diploma in Electrical Engineering	6	Y			
			Bursary: Bachelor of Engineering Technology in Electrical Engineering	7	Y			
Electro-mechanical Engineer			Bursary: National Diploma in Electrical Engineering	6	Y			
			Bursary: Bachelor of Engineering Technology in Electrical Engineering	7	Y			

¹⁵ Weighting was not applied to the SPOL since: (1) not all WSPs have been received by the EWSETA due to granted extensions; (2) the quantities needed within each respective identified occupation are relatively low and weighting would therefore further skew prioritisation; and (3) by weighting relatively low quantities, the overall effect would potentially cause the quantities to be supported by the EWSETA to be even lower from a funding point of view, which in essence may be counter-productive.

* **Note: This intervention addresses skills gaps identified within the respective occupation and is therefore not a learning pathway leading to the corresponding specialisation/alternative title.**



Period	Occupation Code	Occupation	Specialisation / Alternative Title	Intervention Planned by the SETA	NQF Level	NQF Aligned Y/N?	Quantity Needed	Quantity to be Supported by SETA
2021/22	2019 - 215101	Electrical Engineer	Control Engineer	Bursary: National Diploma in Electrical Engineering	6	Y	11	100
				Bursary: Bachelor of Engineering Technology in Electrical Engineering	7	Y		
				Skills Programme: Leadership*	4	Y		
	2019 - 132102	Manufacturing Operations Manager	Operations Manager (Production)	Bursary: Diploma in Manufacturing	6	Y	4	100
				Bursary: Bachelor of Science	7	Y		
				Bursary: Postgraduate Diploma in Manufacturing	8	Y		
				Internship: Manufacturing (workplace experience is essential for this occupation)	N/A	N		
			Plant Superintendent	Bursary: Diploma in Manufacturing	6	Y		
				Bursary: Bachelor of Science	7	Y		
				Bursary: Postgraduate Diploma in Manufacturing	8	Y		
				Internship: Manufacturing (workplace experience is essential for this occupation)	N/A	N		
	2019 - 211401	Geologist	Hydro-geologist / Geohydrologist	Bursary: Bachelor of Science Honours in Applied Geology (Hydrogeology)	8	Y	2	100
			Geomorphologist	Bursary: Bachelor of Science in Applied Geology	8	Y		
	2019 - 214202	Civil Engineering Technologist	Environmental Technologist	Bursary: Advanced Diploma in Civil Engineering	7	Y	2	100
				Bursary: Bachelor of Engineering Technology in Civil Engineering	7	Y		
				Candidate Engineering Technologist: Workplace experience of 3 years is required (for ECSA professional registration)	N/A	N		
			Water and Wastewater Technologist	Bursary: Advanced Diploma in Civil Engineering	7	Y		
				Bursary: Bachelor of Engineering Technology in Civil Engineering	7	Y		
				Candidate Engineering Technologist: Workplace experience of 3 years is required (for ECSA professional registration)	N/A	N		
	2019 - 652302	Fitter and Turner	Industrial Mechanician	Apprenticeship: Fitter and Turner (occupational certificate)	4	Y	2	100
				Learnership: Mechanical Engineering Fitter and Turner	3	Y		
				Learnership: Mechanical Engineering Fitter and Turner	4	Y		
				National Certificate: N1 (Engineering Studies)	1	Y		
				National Certificate: N2 (Engineering Studies)	2	Y		
				National Certificate: N3: (Engineering Studies)	3	Y		
				Recognition of Prior Learning (RPL)	N/A	N		
	Skills Programme: Generic Management*	Y	4					



Period	Occupation Code	Occupation	Specialisation / Alternative Title	Intervention Planned by the SETA	NQF Level	NQF Aligned Y/N?	Quantity Needed	Quantity to be Supported by SETA
2021/22	2019 - 214401	Mechanical Engineer	Mechatronics Engineer	Bursary: Bachelor of Mechanical Engineering	8	Y	2	100
				Candidate Engineer: Workplace experience of 3 years is required (for ECSA professional registration)	N/A	N		
			Rotational Plant Engineer	Bursary: Bachelor of Mechanical Engineering	8	Y		
				Candidate Engineer: Workplace experience of 3 years is required (for ECSA professional registration)	N/A	N		
			Piping Engineer	Bursary: Bachelor of Mechanical Engineering	8	Y		
				Candidate Engineer: Workplace experience of 3 years is required (for ECSA professional registration)	N/A	N		
			Diesel Engineer	Bursary: Bachelor of Mechanical Engineering	8	Y		
				Candidate Engineer: Workplace experience of 3 years is required (for ECSA professional registration)	N/A	N		
			Industrial Machinery Engineer	Bursary: Bachelor of Mechanical Engineering	8	Y		
				Candidate Engineer: Workplace experience of 3 years is required (for ECSA professional registration)	N/A	N		
			Thermodynamics Engineer	Bursary: Bachelor of Mechanical Engineering	8	Y		
				Candidate Engineer: Workplace experience of 3 years is required (for ECSA professional registration)	N/A	N		
			Maintenance Management Engineer	Bursary: Bachelor of Mechanical Engineering	8	Y		
				Candidate Engineer: Workplace experience of 3 years is required (for ECSA professional registration)	N/A	N		
			Pressurised Vessels Engineer	Bursary: Bachelor of Mechanical Engineering	8	Y		
				Candidate Professional Engineer: Workplace experience is required (for ECSA professional registration)	N/A	N		
			Forensic Engineer	Bursary: Bachelor of Mechanical Engineering	8	Y		
				Candidate Professional Engineer: Workplace experience is required (for ECSA professional registration)	N/A	N		
			Fluid Mechanics Engineer	Bursary: Bachelor of Mechanical Engineering	8	Y		
				Candidate Engineer: Workplace experience of 3 years is required (for ECSA professional registration)	N/A	N		
			Machine Design and Development Engineer	Bursary: Bachelor of Mechanical Engineering	8	Y		
				Candidate Engineer: Workplace experience of 3 years is required (for ECSA professional registration)	N/A	N		



Period	Occupation Code	Occupation	Specialisation / Alternative Title	Intervention Planned by the SETA	NQF Level	NQF Aligned Y/N?	Quantity Needed	Quantity to be Supported by SETA
2021/22	2019 - 214401	Mechanical Engineer	Heating and Ventilation Engineer	Bursary: Bachelor of Mechanical Engineering	8	Y	2	100
				Candidate Engineer: Workplace experience of 3 years is required (for ECSA professional registration)	N/A	N		
				Skills Programme: Generic Management*	Y	4		
	2019 - 132401	Supply and Distribution Manager	Depot Manager	Bursary: Diploma in Supply Chain Management	6	Y	2	100
				Bursary: Advanced Diploma in Supply Chain Management	7	Y		
				Bursary: Bachelor in Supply Chain Management	7	Y		
				Bursary: Honours in Supply Chain Management	8	Y		
				Internship: Depot Manager (workplace experience is essential for this occupation)	N/A	N		
			Supply Chain Manager	Bursary: Diploma in Supply Chain Management	6	Y		
				Bursary: Advanced Diploma in Supply Chain Management	7	Y		
				Bursary: Bachelor in Supply Chain Management	7	Y		
				Bursary: Honours in Supply Chain Management	8	Y		
				Internship: Supply Chain Manager (workplace experience is essential for this occupation)	N/A	N		
	2019 - 215103	Energy Engineer	Solar Energy Engineer	Bursary: Bachelor of Engineering in Electrical Engineering	8	Y	1	100
				Candidate Engineer: Workplace experience of 3 years is required (for ECSA professional registration)	N/A	N		
	2019 - 214904	Quantity Surveyor	Electrical Specifications Writer	Bursary: Bachelor of Quantity Surveying	7	Y	1	100
				Bursary: Honours in Quantity Surveying	8	Y		
				Candidate Quantity Surveyor: Workplace experience of 3 years is required (for South African Council for the Quantity Surveying Profession professional registration)	N/A	N		
Plumbing Estimator			Bursary: Bachelor of Quantity Surveying	7	Y			
			Bursary: Honours in Quantity Surveying	8	Y			
			Candidate Quantity Surveyor: Workplace experience of 3 years is required (for South African Council for the Quantity Surveying Profession professional registration)	N/A	N			

Source: Adapted from EWSETA WSP/ATR Data (2020) |DHET Published OFO List (2019) | OIHD List (2018) | National Career Advice Portal| SAQA Qualifications Database

3.5 CONCLUSION

Development of the SPOL is a stakeholder-led process, thus, EWSETA will continue to engage the sector on an ongoing basis in order to strengthen identification and supply of the required skills in the quest to realise outcomes as stipulated in the NSDP (and with emphasis on **NSDP Outcome 3**).





SETA PARTNERSHIPS



4.1 INTRODUCTION

As a primary challenge for the EWSETA partnerships, the existing partnership model was predominantly based on long-term collaboration agreements for the duration of the NSDS III which came to an end in March of 2020. However, a number of these partnerships are continuing based on work now being covered under the disposition of the NSDP. Furthermore, it is the EWSETA’s intention to further explore synergies around planned partnerships in attempt to strengthen collaborative and mutually beneficial cooperation within the sector. However, there is currently no flagship partnership as the SETA aims to standardise its model. Data sources informing the updating of this chapter included engagements conducted with respective internal EWSETA departments.

4.2 EXISTING SETA PARTNERSHIPS

Table 19: Existing EWSETA Partnerships

Name of institution/ partner organisation	Nature of partnership (start & end dates)	Objectives of partnership	Value of partnership	Partnership Challenges/Successes Experienced
Water Research Commission (WRC)	04/2019 to 03/2021 (24 months)	<ul style="list-style-type: none"> Bursary funding to provide access to learners in various water-related disciplines such as water management Review of OFO Codes for the water sector Support the FETWater Phase 3 project (a knowledge transfer and capacity building programme linking learning resources and training capacity to integrate water resource management expertise in areas where they are needed most) Development of a Career Handbook to support career guidance service provision Implementation of national collaborative events to showcase developments in the water sector related to research and innovation 	<ul style="list-style-type: none"> Support for the Water Research Development and Innovation (RDI) Roadmap in support of promoting innovation in the sector Streamlining of the Framework Programme for Research, Education and Training in the Water Sector (FETWater) qualifications across South Africa Development of a standard, unified water sector career guide Synergising the research effort between the EWSETA and related entities in the sector Encouraging entrepreneurial activities, especially amongst work-integrated learning programme (WIL) learners 	<p>Bursaries:</p> <ul style="list-style-type: none"> This aspect of the partnership has not been successful as only 6 out of 50 RDI Roadmap-aligned bursaries were funded by the EWSETA There was misalignment of the strategic intent of the project <p>Review of OFO Codes:</p> <ul style="list-style-type: none"> This aspect of the partnerships has been partially successful For the partnership to achieve its goals, more specialisation might need to be identified and added to the official OFO list <p>Qualification Development:</p> <ul style="list-style-type: none"> To date, FETWater qualifications have been developed However, there have been significant delays with respect to the development of qualifications



Name of institution/ partner organisation	Nature of partnership (start & end dates)	Objectives of partnership	Value of partnership	Partnership Challenges/Successes Experienced
Water Research Commission (WRC) <i>contd.</i>		<ul style="list-style-type: none"> • Training War on Leaks learners across various water-related disciplines 		<ul style="list-style-type: none"> • Furthermore, there have been no implementation or roll out of new, respective qualifications in the sector <p>Integrated Water Career Handbook:</p> <ul style="list-style-type: none"> • This aspect of the partnership has been unsuccessful as the incumbent responsible for seeing to the development of the handbook at the WRC subsequently left the organisation and no formal handover was conducted, placing the project into jeopardy • On the more positive side, EWSETA and WRC are looking into the development of an online career guidance system, which will offer a more interactive mode of service delivery <p>National collaborative events:</p> <ul style="list-style-type: none"> • This aspect of the partnership has been successful • There was effective co-hosting of numerous sectoral events where knowledge sharing, as well as other such engagements, took place <p>Upskilling of War on Leaks Learners:</p> <ul style="list-style-type: none"> • This aspect of the project has not been successful as third-party funding did not materialise



Name of institution/partner organisation	Nature of partnership (start & end dates)	Objectives of partnership	Value of partnership	Partnership Challenges/Successes Experienced
Water Research Commission (WRC) <i>contd.</i>				General: <ul style="list-style-type: none"> EWSETA and WRC have successfully informed sector skills research and are sharing information and lessons learned Generally, there is good will from EWSETA and WRC to collaborate further
Stellenbosch University Water Institute	04/2019 to 03/2021 (24 months)	<ul style="list-style-type: none"> Support for water-related qualification development (agricultural sector) TVET lecturer development 	<ul style="list-style-type: none"> Develop up-to-date water-saving agricultural qualification Capacitate TVET lecturers on water knowledge 	Support for third-party funded qualification development: <ul style="list-style-type: none"> This partnership has been successful EWSETA supported the international consortium with sector and technical know how EWSETA is currently awaiting status and update reports with respect to the project However, EWSETA was not successful in its attempt to bring other SETAs on board
Department of Human Settlements, Water and Sanitation (DHSWS)	04/2019 to 03/2021 (24 months)	<ul style="list-style-type: none"> Ensure qualification roll out: Japanese International Cooperation Agency (JICA) Steering Committee Quarterly participation in the Water and Sanitation Sector Leadership Group on Skills Development 	<ul style="list-style-type: none"> Guide international project with technical expertise in skills development and drive implementation of the national qualifications roll out plan Receive sector input to skills planning and project implementation in the skills development space Disseminate information and share synergies regarding EWSETA initiatives with the broader sector 	JICA Project: <ul style="list-style-type: none"> This aspect of the partnership has been partially successful EWSETA provided technical guidance on the South African skills development landscape, and was invited to sit on the Steering Committee which ended up not being convened in 2019/20 due to the lockdown



Name of institution/ partner organisation	Nature of partnership (start & end dates)	Objectives of partnership	Value of partnership	Partnership Challenges/Successes Experienced
Department of Human Settlements, Water and Sanitation (DHSWS) <i>contd.</i>				<ul style="list-style-type: none"> The project is currently being spearheaded by the DHSWS; however, the national lockdown seems to have dampened progress in this respect <p>Participation in the Water Services Sector Leadership Group (WSSLG):</p> <ul style="list-style-type: none"> This aspect of the collaboration has been successful EWSETA has a good working relationship with the WSSLG and presents to the forum on a regular basis EWSETA uses the forum for sector inputs and information sharing
Tshwane University of Technology (TUT)	03/2020 to 03/2023 (36 months)	<ul style="list-style-type: none"> Development of courses in the wastewater and solid waste management field not yet covered with regards to general waste management Education to create community awareness in the responsible management of wastewater and solid waste throughout the material cycle 	<ul style="list-style-type: none"> Design of sustainable technologies for liquid & solid waste management Integrated waste management strategies and legislation focused on green economic growth Renewable energy courses to people within the Apprenticeship and Learnership programmes; courses will also include entrepreneurial start-up courses such as: recycling of scraped tyres; handling and processing of e-waste; and development and refinement of courses in the field of solid waste management also 	<ul style="list-style-type: none"> A memorandum of agreement (MOA) was finalised and signed by the EWSETA and TUT The project is currently being implemented and is expected to be completed in 2023 At the time of updating this SSP, the first steering committee meeting was to be held on 14 August 2020 to: Review the terms of reference and ensure all deliverables are still on track with respect to implementation Review the project plan presentation and ensure all deliverables are still



Name of institution/ partner organisation	Nature of partnership (start & end dates)	Objectives of partnership	Value of partnership	Partnership Challenges/Successes Experienced
Tshwane University of Technology (TUT) <i>contd.</i>			focusing on energy-form-waste (EfW) <ul style="list-style-type: none"> • Develop articulation pathways for students within the TVET sector • Educating and engaging the public on Wastewater Treatment and Sustainability • Treatment of solid waste (including e-waste management initiatives) 	on track with respect to implementation <ul style="list-style-type: none"> • Identify any critical challenges which may hinder successful project completion in a timely manner and make recommendations to address these • Provide additional recommendations on strengthening research currently under way in this respect
Water Institute of Southern Africa (WISA)	04/2019 to 03/2021 (12 months)	<ul style="list-style-type: none"> • Avail opportunities for candidacy programmes • Continuous Professional Development (CPD)-accredited event support for top-up skills development addressing skills gaps • Sector engagements 	<ul style="list-style-type: none"> • Sector support for accredited activities which count towards continuing professional development (CPD) • Enable young water professionals to showcase research and innovation • Provide learners with career networking opportunities as part of career guidance services • Showcase EWSETA in South Africa and the work we do by way of events, sector engagements, etc. • Professionalisation of learners within the water sector 	<p>Top-up skills:</p> <ul style="list-style-type: none"> • This partnership has been partially successful • EWSETA hosted a WISA CPD-accredited short course for NLPEs and NGOs on how to manage the COVID-19 crisis in terms of financial consolidation, etc., and positive feedback was received from those in attendance • However, EWSETA struggled to collect the required compliance documents from participants and the SETA was therefore unable to achieve respective targets <p>Sector engagements:</p> <ul style="list-style-type: none"> • WISA is one of EWSETA's key role players with respect to driving skills development



Name of institution/ partner organisation	Nature of partnership (start & end dates)	Objectives of partnership	Value of partnership	Partnership Challenges/Successes Experienced
Water Institute of Southern Africa (WISA) <i>contd.</i>				<ul style="list-style-type: none"> EWSETA uses WISA's communication channels to disseminate knowledge and information The CEO of WISA is a member of the EWSETA board, which further adds value to strategic alignment between EWSETA and the water sector
National African Energy Association Wholesalers of South Africa (NAEWASA)	06/2018 to 03/2021 (33 months)	<ul style="list-style-type: none"> Awarding of bursaries in energy leadership Strategic transformational partnership with the association to increase our levy base within the oil and gas industry 	<ul style="list-style-type: none"> Skilling Opportunities identified in the manufacturing, repair and maintenance, including retailing of LP Gas Cylinders in SA Cooperatives will be skilled so that there is a bottom-up approach and energy provision within the rural/townships. The partnership is currently on track 	<p>Bursaries:</p> <ul style="list-style-type: none"> Awarded bursaries are to be completed during 2020 However, there were delays with the EWSETA paying bursary grant funds to the Institution of Higher Learning which led to one of the recipients abandoning the programme The remaining bursars are on track to complete their studies in 2020 after they submit their research reports <p>Cooperatives Skills Programme:</p> <ul style="list-style-type: none"> Though guidance was provided, Cooperatives experienced compliance issues with respect to the EWSETA Discretionary Grant processes, as well as proposal compilation Thus, the EWSETA must consider implementing skills interventions for proposal writing for transformative partners in order to address such challenges



Name of institution/ partner organisation	Nature of partnership (start & end dates)	Objectives of partnership	Value of partnership	Partnership Challenges/Successes Experienced
Aspigon Energy	01/2019 to 03/2021 (26 months)	<ul style="list-style-type: none"> • Awarding of bursaries in energy leadership • Capacitating the SMME in relevant areas such as office support • Making provision for workplace internship and Learnership learners 	<ul style="list-style-type: none"> • Increase synergies between the EWSETA and SMMEs by fostering a collaborative culture conducive to the support of SMMEs, particularly small businesses, and create an opportunity for greater information sharing capabilities between the SETA and the sector • Increasing the level and nature of sector support in terms of effective skills provision and factors sustaining value creation in this respect • The partnership is currently on track 	<p>Bursaries (SMME Post Graduate Studies):</p> <ul style="list-style-type: none"> • The bursar is currently enrolled for a Post Graduate Diploma in Management (Energy Leadership) which should be completed during 2020 • The SMME raised challenges of maintaining a balance of running their business and having to meet the commitments of the academic programme <p>SMME Learnerships and Internships:</p> <ul style="list-style-type: none"> • There were challenges in implementing internship and learnership interventions with the SMME as they were not able to apply for Discretionary Grant funding • The above was due to the lack of capacity to offer mentorship and related support to respective learners who intended on embarking on the programme • However, the SMME has expressed a keen interest in implementing internship and learnership interventions once their current learning programmes have been completed



Name of institution/ partner organisation	Nature of partnership (start & end dates)	Objectives of partnership	Value of partnership	Partnership Challenges/Successes Experienced
Umisa Business Services	01/2019 to 03/2021 (26 months)	<ul style="list-style-type: none"> • Awarding of bursaries aimed at management in energy leadership • Capacitating the SMME in relevant areas such as office support • Making provision for workplace internship and Learnership learners 	<ul style="list-style-type: none"> • Increase synergies between the EWSETA and SMMEs by fostering a collaborative culture conducive to the support of SMMEs, particularly small businesses, and create an opportunity for greater information sharing capabilities between the SETA and the sector • Increase the level and nature of sector support in terms of effective skills provision and factors sustaining value creation in this respect • The partnership is currently on track 	<p>Bursaries (Master of Management in the Field of Energy Leadership):</p> <ul style="list-style-type: none"> • The bursar is expected to complete their studies and submit their research report in 2020. • Furthermore, the SMME reported the Master’s programme has assisted them in gaining valuable insight with respect to the energy industry and improving their management skills <p>Internships and Learnerships:</p> <ul style="list-style-type: none"> • There were challenges in implementing internship and learnership interventions with the SMME as they were not able to apply for Discretionary Grant funding • This was due to the lack of capacity to offer mentorship and related support to respective learners who intended on embarking on the programme • However, the SMME has expressed a keen interest in implementing internship and learnership interventions once their current learning programmes have been completed



One other key challenge with respect to EWSETA partnerships has been the current EWSETA Funding Model which depends largely on discretionary grant funding application processes. However, this is still being addressed through the development of a new partnership model and is subject to EWSETA Board approval.

4.3 PLANNED PARTNERSHIPS

The table below presents the partnerships that the EWSETA plans to establish in the foreseeable future.

4.3.1 New partnerships required by the EWSETA

Table 20: New partnerships required by the EWSETA

Partner/ Stakeholder Type	Factors Necessitating Partnerships
Central University of technology (CUT)	<ul style="list-style-type: none"> • The need to develop courses within the renewable energy field as renewable energy is a growing discipline, with an emphasis on solar as well as wind energy sources • Furthermore, there is a need to create community awareness of the optimal use of renewable energy, including household reduction of the energy load • To contribute to the EWSETA Knowledge Management System (Knowledge Hub)
Public Universities/ Universities of technology	<ul style="list-style-type: none"> • To enhance/support qualification development in lieu of nuanced sectoral skill needs as a direct consequence of COVID-19. • Offer learners the opportunity to gain knowledge, skills and experience across various disciplines such as technology and engineering • Qualification development must emphasise the importance and significance of entrepreneurship as one of the key components of career development services. • E-learning-Virtual platforms focus (in light of QCTO memorandum)
SMMEs	<ul style="list-style-type: none"> • The need to identify additional SMMEs to host EWSETA learners for water sector-related WIL programmes <ul style="list-style-type: none"> - Improve/increase learning opportunities for employed and unemployed learners - Increased identification of skill needs and OIHDs in light of COVID-19 - Identify recommendations for enhanced career guidance and other supportive development activities • Capacitating SMMEs in relevant areas such as project management, business leadership, financial management, and other support functions
Emergent Cooperatives	<ul style="list-style-type: none"> • The directly need to respond to NSDP Outcome 6, Sub-Outcome 1 • Increase skills development support for entrepreneurial activities • Increase skills development support for the establishment of new enterprises and cooperatives
Small and Emerging Enterprises	<ul style="list-style-type: none"> • The directly need to respond to NSDP Outcome 6, Sub-Outcome 1 • Increase skills development support for entrepreneurial activities • Increase skills development support for the establishment of new enterprises and cooperatives
TVET Colleges	<ul style="list-style-type: none"> • The need to identify two (2) TVET Colleges for partnership • To support growth of occupationally directed programmes • To create greater synergies between employers and TVET Colleges
Community Education and Training College (CETCs)	<ul style="list-style-type: none"> • The need to identify at least one (1) CETC for training and capacitation/support • The need to develop CETC lecturers
Sector Employers	<ul style="list-style-type: none"> • Partner with the following key stakeholder groups and provide EWSETA career guidance information that can be made available to young people digitally on partner digital communication platforms: <ul style="list-style-type: none"> - Relevant Government Departments i.e. DHET, Dept. of Basic Education; Dept. of Energy and Mineral Resources; Dept. of Human Settlements, Water and Sanitation - Industry bodies i.e. WISA, NECSA, SAWEA, SAREA etc; - Higher Education and Training Institutions (Universities, Universities of Technology and TVET Colleges)



Partner/ Stakeholder Type	Factors Necessitating Partnerships
Sector Employers <i>contd.</i>	<ul style="list-style-type: none"> Employers in the Sector, i.e. Department of Human Settlements, Water and Sanitation, the Water Research Commission and other key employers including Irrigation Boards and Water Boards
Korean Solar Power Consortium (KSPC)	<ul style="list-style-type: none"> The company will be investing US\$ 800 Million towards the establishment of a Solar Plant in Xhariep and Manufacturing plant in Johannesburg (infrastructure development and operations are projected to commence in 2020/21) Train learners as solar photovoltaic (PV) technicians in response to renewable energy needs, and retain learners upon successful completion of programmes as permanent employees within KSPC Establishment of a formal training centre geared towards the training and development of learners in solar technologies and related vocations
Central Energy Fund (CEF)	<ul style="list-style-type: none"> Train unemployed youth learners as assistant installers of solar water heating (SWH) solutions EWSETA was appointed as the quality assurance provider for the National Solar Water Heater programme EWSETA submitted due diligence report in October 2019 and February 2020 with recommendations for training service providers for the national project It is envisioned that training will commence in 2020/21
Gesellschaft für Internationale Zusammenarbeit (GIZ)	<ul style="list-style-type: none"> Qualification assessment addendum: to develop assessment tools for conducting Energy Efficiency Technicians assessments. These assessment tools are required as the Energy Efficiency Technician Qualification was previously identified as a need within the sector (SAQA-registered).
Southern African Energy Efficiency Confederation	<ul style="list-style-type: none"> Development and quality assurance of renewable energy-related curricula
South African National Energy Association (SANEA)	<ul style="list-style-type: none"> Development and quality assurance of renewable energy-related curricula
South African Wind Energy Association (SAWEA)	<ul style="list-style-type: none"> Development and quality assurance of renewable energy-related curricula
South African Renewable Energy Technology Centre (SARETEC)	<ul style="list-style-type: none"> Development and quality assurance of “Just Transition” curricula
Services SETA	<ul style="list-style-type: none"> SMME Development and Capacitation Services SETA has developed a comprehensive, evidence-based programme to train SMMEs in South Africa, across all sectors. EWSETA is part of the “Inter-SETA Steering Committee”. Partnering with Services SETA will allow EWSETA to support high impact, cross-sectoral SMME interventions.

4.4 CONCLUSION

The EWSETA will remain committed to strengthening its partnership approach to more effectively support national strategies and plans, enhance synergies between the EWSETA and the sector, and improve research and innovation across the sector as a few such examples.





SETA MONITORING AND EVALUATION



5.1 INTRODUCTION

The EWSETA monitors and evaluates implementation based on primary and secondary data/information sources as an underpinning basis for reflections outlined in the section to follow. The purpose of evaluations is to systematically and objectively assess programmes, projects and policies; to make judgements with respect to the achievement of intended results; and to assess the causal links between implementation and observed results. Monitoring and reporting are conducted against Strategic Plans (SPs), Annual Performance Plans (APPs), Quarterly Monitoring Reports (QMRs), Annual Operations Plans (AOPs) and Annual Performance Reports (APRs).

5.1.1. The EWSETA's approach to monitoring and evaluation

The EWSETA continues to perform monitoring and evaluation (M&E) with respect to the implementation of 'programmes' linked to the SP, APP, AOP, QMR, and the APR as well as previous EWSETA SSPs, which were also utilised in preparation of this chapter as secondary data sources. The, EWSETA therefore seeks to effectively monitor and evaluate the implementation of primary SETA objectives in the form of "programmes".

A mid-term Assessment Report will provide information about progress on implementing the EWSETA's SP after the first two and a half financial years of implementation, with particular reference to delivery of outcomes. An end-term Assessment Report will indicate the extent of progress and achievement in implementing the SP, with particular reference to monitoring delivery of outcomes and impact after every five-year cycle/period.

5.1.2 How the EWSETA makes use of M&E data to support research and planning

The EWSETA follows a series of steps when making use of M&E data to support research and planning through the M&E cycle. As an interrelated sequence of M&E tasks and activities, the steps described below represent a continuous cycle, each providing subsequent steps with the required data, thereby representing the M&E cycle.

- **Step 1: Development of the EWSETA Sector Skills Plan (SSP) using evaluative data** - inputs derived from evaluative/assessment studies during the evaluation cycle of M&E. Primary as well as secondary data are collected and are used as inputs into the skills planning cycle (i.e. development of the Sector Skills Plan), including review of SPs, APPs, AOPs, QMRs, and APRs.
- **Step 2: Monitoring the development of the SSP** – through the use of a simple monitoring "tool", the EWSETA more accurately aligns the SSP with key aspects such as NSDP prescripts, the DHET SSP framework and the EWSETA Accounting Authority, whilst measuring progress of development of the SSP itself. Thus, data and information derived from credible sources are used to inform development of all EWSETA planning documents.
- **Step 3: Aligning the EWSETA Strategic Plan (SP), Annual Performance Plan (APP) and Annual Operations Plan (AOP)** – the monitoring aspect the EWSETA approach allows for the more effective alignment of the SP, APP and AOP to the sector skills plan by aligning respective data across all EWSETA planning documents. In this way, cohesion between these four critical planning documents is maintained to optimise implementation of EWSETA Programmes, including learning interventions and related programmes.
- **Step 4: Monitoring implementation of SSP, SP, APP and AOP** – implementation of the EWSETA SSP, SP, APP, and AOP are monitored by way of data derived from monitoring tools such as Quarterly Monitoring Reports, Annual Performance Reports, and other feedback mechanisms, including those involving the EWSETA Accounting Authority and the DHET.
- **Step 5: Evaluation** – Through its comprehensive Research Agenda, the EWSETA measures the effectiveness of EWSETA programmes, e.g. through evaluative studies as well as other forms of research, data/knowledge derived from such undertakings serve as inputs to skills planning, i.e. the development of the SSP (which once again feeds back into the first step of the M&E cycle).



5.1.3 The extent to which the EWSETA has addressed the previous financial year’s strategic priorities

Table 21: Extent to which the EWSETA has addressed the Previous Financial Year’s Strategic Priorities

Priority No.	Priority Action	Status	Plan of Action
1.	<p>Sectoral Labour Market Demand Articulation:</p> <p>Continue to implement and coordinate research aimed at achieving outputs articulating labour market demand in the sector. The SETA should continue to focus on increasing its internal research capacity, thereby strengthening the implementation of evidence-based research as an effective means of identifying and projecting skills demand for the sector</p>	<p>On an annual basis the EWSETA continues to successfully develop and update its sector skills plan. In addition, the EWSETA research agenda continuous to be revised as a “living document” which reflects the research needs of the EWSETA in lieu of sectoral skill needs, covering various facets of research objectives and intended outcomes. The outcomes of research undertakings conducted by the EWSETA serve as inputs into increasingly effective sector skills planning, which cannot be achieved without sector participation through interviews and the collection of data related to hard-to-fill vacancies, occupations in high demand, skills gaps, etc. The culmination of labour market intelligence forms the epitome of research works intended to facilitate efficacious sectoral labour market demand articulation as the ultimate desired outcome of evidence-based decision-making. The EWSETA continues to seek innovative ways of dealing with inherent challenges, such as limited resources which have an impact on the overall efficiency of the research effort. This priority action found expression in the previous SP and APP.</p>	<p>Firstly, and in the short to medium term, the EWSETA will explore more effective ways of addressing the need for increased human resources to conduct research activities such as field work and data collection. However, this remains a challenge for the EWSETA since the required financial resources are limited in this respect. Second, the EWSETA will continue to explore ways of increasing stakeholder participation in research undertakings (e.g. through increased WSP submissions, increased engagements with the sector in the form of workshops, etc.) in order to further enrich the level and quality of data collected from the sector; without which, effective skills planning would not be possible. Engagements with the sector in this regard have already begun to yield positive results. Lastly, a possible consideration for the EWSETA is to lobby for the legislation of stakeholder participation in SETA research. This can be achieved through, e.g. a compulsory employer survey conducted on an annual basis seeking information such as HTFVs, Occupations in High Demand, and Skills Gaps. This may serve to increase the level and quality of data collected from respective sectors. In other words, submission of required sector data should not be optional but mandatory in order to effectively address the skill needs of the sector and the economy at large, thereby improving service delivery in this respect.</p>
2.	<p>Skills-related Partnership Development:</p> <p>Partnerships are needed to bring together stakeholders in the sector who will plan for and implement</p>	<p>Sector stakeholders play a critical role in identifying and responding to sectoral skill needs. Thus, the EWSETA remains committed to establishing and enhancing partnerships with stakeholders across the sector for the primary purpose of enhancing synergies aimed at supporting national plans and strategies; linking</p>	<p>In the short to medium term, the EWSETA will continue to explore and increase on the number of partnerships intended to address sectoral needs and national prescripts through the establishment of formal agreements “intended to achieve specified outcomes directed towards addressing mutually</p>



Priority No.	Priority Action	Status	Plan of Action
2. <i>contd.</i>	development imperatives to meet current and future skill needs	education and work; promoting entrepreneurial skills to support enterprise development; increase mentorship; increase qualification development; expand on workplace-based learning opportunities and achieve enhanced productivity of employer organisations as a result of improved productivity of workers through skills development. This priority action found expression in the previous SP and APP.	<p><i>inclusive skills priorities or objectives within a specified time frame</i>". These partnerships will aim to achieve the following:</p> <ul style="list-style-type: none"> • Mobilisation of multiple stakeholders to more effectively identify and respond to sectoral skill needs driven by change drivers such as 4IR; • The transfer of the required skills, knowledge, competencies and experience to learners through work integrated learning opportunities; • Link education and work through formalised partnerships aimed at bridging the gap between theoretical education and practical application; • The introduction and development of qualifications registered with SAQA and aimed at supporting national prescripts and change drivers.
3.	Training of employed workers: Continue to implement Recognition of Prior Learning (RPL) programmes, and promote the retraining of workers in order to appropriately align learners to new/emerging skills within the sector	The increase of 37.5% from 2016 to 2018 with respect to the number of learners supported through the EWSETA RPL programmes demonstrates the ongoing commitment to the priority action. Furthermore, with the advent of rapid advancement of technology, changes in climate patterns, and diverse challenges faced by the energy and water sector, it is imperative that workers are encouraged to partake in continuous personal development so as to remain abreast of such changes and find sustainable solutions to challenges, as well as exploit opportunities as and when they come to the fore. This priority action found expression in the previous SP and APP.	<p>Over the medium to long term, the EWSETA will continue to support workers by strengthening their current and future position within organisations. This can be achieved through:</p> <ul style="list-style-type: none"> • Enhancing communication channels (in light of COVID-19); • Increasing support of partners by, e.g. continuously sharing EWSETA knowledge and insights gained through research and M&E tasks and activities; • Directly involving partners in SETA research initiatives and undertakings within the PSET landscape; • Attempting to improve synergies between the EWSETA Quality Assurance function, SAQA and related Quality Councils, and EWSETA partners and • Aligning employee skills with those identified across occupations in high demand by training/retraining incumbents in relevant occupations/specialisations;



Priority No.	Priority Action	Status	Plan of Action
3. <i>contd.</i>			<ul style="list-style-type: none"> Enhancing career guidance services offered to learners across the sector and ongoing analysis of skill needs; Increasing the number of partnerships geared towards lifelong learning supported by enhanced research-related development initiatives in collaboration with relevant sector stakeholders in determining.
4.	Small, Medium and Micro-Sized Enterprise (SMME) Development: Increase effort with respect to SMME development intended to support expanded employment in a more diverse sector	In addition to previously reported activities, the EWSETA has continued to emphasise the need for direct engagement with stakeholders through one-on-one meetings, especially for new entrants, as well as through CEO and SDF Roadshows. The EWSETA also continues to encourage the uptake of learning programmes designed to facilitate the day-to-day running of respective enterprises. Through such initiatives and interventions, the EWSETA remains committed to expanding its footprint across the energy and water sector. This priority action found expression in the previous SP and APP.	In the short to medium term, the EWSETA will strive to increase the number of businesses supported, particularly small and micro-sized entities, by addressing the following aspects: <ul style="list-style-type: none"> Supporting the number of development opportunities granted to SMMEs in the form of grant funding and appropriate learning interventions; Ensuring alignment between the skill needs of SMMEs and appropriate learning interventions; Increasing the involvement of SMMEs in the identification of skill needs across the sector; Increasing SMME involvement in the development of appropriate qualifications and related interventions where feasible; Promoting entrepreneurship skills within SMMEs designed to enhance sustainability by incorporating such skills within learning programmes and enhancing career guidance mechanisms aimed at supporting SMMEs, especially new entrants to the sector.
5.	A Balanced Equity approach: Continue to support equity imperatives, especially in key professional and technical occupations	The EWSETA remains on track with respect to emphasising equality across learning interventions, especially in the case of African female learners. The 2018/19 EWSETA Impact Study revealed that most learners entering programmes were African females. Generally, African learners continue to be well represented across interventions supported by the EWSETA.	Over the long term, the EWSETA will continue to support equitable practices with respect to learning programme implementation across interventions by: <ul style="list-style-type: none"> Maintaining a strong focus on balanced equity, where fair practices with respect to learner representation across EWSETA learning interventions



Priority No.	Priority Action	Status	Plan of Action
5. <i>contd.</i>			<p>are observed and ensured (with particular emphasis on the support of the previously disadvantaged, as well as the disabled);</p> <ul style="list-style-type: none"> • Improving representation within professional and technical learning programmes as a means of promoting equitable representation across sectoral occupations in response to biased historic imbalances; • Exploring ways of supporting and promoting learners in support of achieving equitable completion rates; • Promoting learning interventions that cater for the needs of learners which may serve to address transformation imperatives; • Encouraging the previously disadvantaged to embark on learning interventions geared towards professional disciplines which support sustainable, long-term occupations within the sector.
6.	<p>Monitoring and Evaluation Development: Establish a formal EWSETA monitoring and evaluation (M&E) framework</p>	<p>First and foremost, the EWSETA is currently in the process of recruiting a qualified and experienced M&E specialist to further enhance M&E functions. It is envisaged that this will significantly contribute to: the finalisation of an established M&E framework conducive to M&E tasks and activities; enhanced quality of monitoring and evaluation activities; aligned to strategic and annual performance planning; enhanced implementation of the EWSETA research agenda; as well as enhanced input into the identification of occupations in high demand and sectoral priority occupations. This priority action found expression in the previous SP and APP.</p>	<p>It remains the intention of the EWSETA to identify and appoint a qualified M&E specialist/practitioner/consultant in the short term in order to:</p> <ul style="list-style-type: none"> • Enhance M&E capacity within the EWSETA system • Develop, update and maintain a formal EWSETA-wide M&E framework • Establish advanced M&E tools, processes, procedures and guidelines with respect to the M&E function; • Conduct quality monitoring, thereby ensuring data integrity and reliability; • Provide quality data inputs into the planning activities of the EWSETA; • Ensure appropriate monitoring of the EWSETA research agenda; • Ensure quality evaluative studies/assessments are conducted within the short to medium term and serve as input into the EWSETA planning cycle.



Priority No.	Priority Action	Status	Plan of Action
7.	National Imperatives: Strategic Measures to Support National Strategies and Plans	National imperatives remain a critical part of EWSETA skills planning and implantation activities. The EWSETA therefore continues to orientate itself to national strategies and plans through the supply of relevant skills, whilst maintaining alignment with NSDP outcomes. For instance, EWSETA partnerships play a vital role in supporting national imperatives as they serve to more effectively identify occupations in high demand, link education and the workplace, and enhance the research effort.	Over the long term, the EWSETA will endeavour to ensure continued alignment with national strategies and plans with respect to skill priorities by addressing the following: <ul style="list-style-type: none"> • Increase the supply of professional engineers and environmental engineers for effectively supporting industrial development. Learning programmes will also support innovation skills further enhancing development, especially within the water sector; • Support the increase of water networks, especially to previously unserved areas. In addition, the SETA will support scientific research in key disciplines enhancing technological advancement, products and related services; • Enhance skills related to the energy mix. • Increase the supply of qualified incumbents in fields such as hydrology and hydrogeology as South Africa’s water scarcity challenges increase. The EWSETA will seek ways of educating and training learners in related disciplines in as short a time as possible to increase supply of the required skills, knowledge and competencies; • The EWSETA will continue to orientate itself to national imperatives in order to more effectively meet the broader objectives of the National Development Plan (NDP).

5.2 CONCLUSION

The EWSETA priority actions continue to be incrementally achieved, and the SETA remains determined to continue to improve upon its overall performance. Thus, there remains room for continuous improvement. For instance, the enhancement of the research function with increased capacity, as well as the introduction of a formalised M&E framework, will go a long way in better servicing the many needs of the energy and water sector at large.





STRATEGIC SKILLS PRIORITY ACTIONS



6.1 INTRODUCTION

The purpose of this chapter is to inform the strategic intent of the EWSETA. The section to follow details key findings, as well as the extrapolated recommended priority actions for the upcoming period of implementation. The EWSETA must continue to strive for attainment of the priority recommendations identified, to incrementally achieve the ultimate vision of the organisation.

6.2 KEY SKILLS FINDINGS FROM PREVIOUS CHAPTERS

Table 22: Key Findings from Previous Chapters

Chapter	Key Findings
1. Sector Profile	<ul style="list-style-type: none"> • The energy and water (EW) sector is made up of 15 subsectors. According to data sources, in 2019/20 there were around 2,495 organisations registered with the EWSETA, of which 2,064 (82,73%) organisations were registered in energy and 431 (17,27%) registered in the water sector. • Furthermore, during 2018/19 there were 2,367 organisations registered with the EWSETA; thus, there has been an overall increase of 128 organisations recorded, representing a 5,41% increase year-on-year. However, it is important to note that the impact of the COVID-19 pandemic is yet to be fully realised; the effects of which could potentially dampen growth efforts across the EW sector • Be as it may, this represents growth for the EWSETA. Interestingly, the subsector experiencing the largest growth with respect to the number of entities registered between 2018/19 and 2019/20 is SIC Code 41114 – Generation of renewable energy (12,92% increase). • Collectively, the energy subsectors experienced larger average growth (5,72%) during the same period when compared with the water subsectors (3,96%). • Government remains committed to the diversification of energy in response to electricity supply challenges. • Government has also set out priorities for water demand management and related projects to address water scarcity issues further exacerbated by population growth. • Through the EWSETA, key role players become active participants in the drive towards the achievement of outcomes prescribed in the NSDP, for example, employer organisations Submit workplace skills plans (WSPs) to the EWSETA which to a great extent identify occupations in high demand, as well as hard-to-fill vacancies (HTFVs), which responds directly to NSDP Outcome 1. However, COVID-19 poses a threat to the achievement of outcomes in the foreseeable future due to disruptions caused to training due to social distancing, retrenchments, loss of revenue as a result of the national lockdown, and other such challenges. • Institutions in the PSET landscape, on the other hand, play a direct role in achieving NSDP outcomes, such as outcomes 1, 2, 3, 4, 5. COVID-19 may disrupt the 2020 calendar and hinder the output of qualified incumbents. • Further compounding the already dire economic climate, the rapid global spread of COVID-19 meant South Africa had to resort to drastic measures to curb the impact of the disease’s volatile nature; i.e. the national lockdown, which resulted in low to no activity across industries. • The economic impact thereof will see the country reroute spending, which could’ve been utilised for infrastructural development, but instead directed towards disaster management and reserves to help businesses and individuals deal with the economic fallout as a direct consequence of the coronavirus and the national state of disaster. • The fourth quarter (Q4) of 2019 saw South Africa’s GDP contract by 1,4% which has resulted in the country being catapulted into a second economic recession within a short space of two years. This adverse outcome was preceded by a contraction of 0,8% in GDP in Q3 of the same year. This marks the third recession for South Africa since 1994, the state of which is further worsened by the implications of COVID-19. • With a serious poverty burden, the provinces with the highest proportion of adults living in poverty are Limpopo (67.5%), Eastern Cape (67.3%), KwaZulu-Natal (60.7%), and North West (59.6%); with Gauteng and Western Cape representing the lowest levels of poverty in relative terms at 29.3% and 33.2% respectively. • The provinces with the highest proportion of adults living in poverty are Limpopo (67.5%), Eastern Cape (67.3%), KwaZulu-Natal (60.7%), and North West (59.6%). Such realities may be further exacerbated by increased unemployment associated with the effects of COVID-19. • By the end of the calendar year of 2019, the local unemployment rate was already standing at approximately 28% to 29; this rate will most likely increase as a result of COVID-19. • Youth unemployment continues to increase, where the rate of unemployment is relatively higher than all other age categories, irrespective of level of education.



Chapter	Key Findings
1. Sector Profile <i>contd.</i>	<ul style="list-style-type: none"> • By June of 2018, the electricity, gas and water supply industry experienced a decline of 3,13% in the total number of workers reported, followed by a stronger decline of 4,84% during the same period in 2019. • Overall, of the 20,4 million people aged between 15-34 years, 40,4% were NEET, representing an increase of 0,1% compared to Q2 of 2019. • On a more positive note, the increased focus on renewable energy sources brings about the potential for new job creation prospects. • Similarly, new innovations in water and sanitation, such as “off-grid/non-sewered” sanitation technologies, present realisable opportunities for stimulating the development of a new industry, which will potentially meet several national objectives of job creation and SMME development in the country.
2. Major Change Drivers and National Priorities	<ul style="list-style-type: none"> • There are numerous change drivers influencing the sector. Some of the most notable are the 4IR, climate change and unpredictable weather patterns, regulations, economic performance, and the COVID-19 pandemic. • The advent of technology and the 4IR has made it increasingly difficult to accurately determine future skills due to an unpredictable future, especially in light of COVID-19. • According to qualitative data sources (2020), it was noted that financial costs emanating from several identified change drivers was the leading factor influencing skills development imperatives across organisations; not to mention the impact COVID-19 is likely to have on businesses across the sector, thereby undermining financial resources and placing training budgets at risk. • The philosophy of “future-fit” planning and the more effective identification of skills are critical aspects for organisations and SETAs in the quest for continuously improving the adequate and appropriate supply of the right skills at the right time and for the right purpose. • COVID-19 as a new change driver within the energy and water sector has brought about immeasurable disruption. For example, business shutdown due to the national lockdown has resulted in reduced productivity in terms of operations and training; social distancing has affected the effective implementation of learning programmes; labour regulations are changing on an ongoing basis, which will further impact training outputs and outcomes; and as a result, distance learning mechanisms such as ‘E-Learning’ have therefore become increasingly important as enabled by 4IR, which requires digital skills for implementation as well as end-user interaction. • IPAP aims to link energy to mineral-based solutions such as fuel cells and energy storage as alternatives to petroleum fuels. The IPAP has also extended its focus to include water and sanitation in the form of water industrialisation development, desalination in manufacturing, next generation sanitation cluster development, and development of advanced wastewater technologies in manufacturing. • The NIP has seen to several initiatives currently under way to align infrastructure projects to NDP goals in order to maximise efficiency and effectiveness of expenditure on infrastructural development. • Diversification of the energy mix remains at the fore, as indicated by the IRP, where coal, nuclear, natural gas, renewable energy, hydro, and energy storage remain key catalysts for driving efficient delivery of energy to the economy. • The EWSETA will remain committed to, skills development imperatives as a means of supporting national strategies and plans. • Mutual collaboration, substantive effort, holistic planning and organisation of skilled human resources must remain at the fore of EWSETA’s quest to continuously improve service provision to the sector.
3. Occupational Shortages and Skills Gaps	<ul style="list-style-type: none"> • Skills gaps were identified at major as well as occupational levels where “technical skills” were revealed as the most cited skills gap across WSP-submitting firms. • Even though none of the apparent HTFVs identified during research were as a direct result of COVID-19 since such HTFVs existed before the COVID-19 pandemic came to be, it is important to note, the potential impact of COVID-19 on organisations may cause a shift in demand for HTFVs due to retrenchments, downsizing, etc. furthermore, it is equally important to acknowledge a shift across skills gaps as a consequence of COVID-19. For example, “disaster management” and “digital skills” are fast becoming important future skills in light of COVID-19, though these skills may not necessarily be “new”, they are however nuanced in this respect as they are now viewed through the COVID-19 lens. • The top 10 HTFVs were identified which included vacancies such as water process controllers and electrical engineers. • Typical reasons for apparent HTFVs related to, for example, lack of relevant qualifications and lack of appropriate experience.



Chapter	Key Findings
<p>3. Occupational Shortages and Skills Gaps <i>contd.</i></p>	<ul style="list-style-type: none"> • From a basic education perspective, it was recorded that a pass rate of 81.3% was achieved nationally for 2019, up from a previous 78.2% in 2018, with Gauteng producing the highest number of Bachelor’s passes whilst Western Cape presented the highest number of distinctions. • There was a marked improvement in the gateway subjects, including Mathematics and Physical Science, with a performance improvement from 49.1% to 54.6%, and 58.6% to 75.5% respectively between 2015 and 2019. • According to stakeholders interviewed as part of empirical research currently being carried out by the EWSETA, many cited several reasons for some of the challenges experienced with respect to the availability of important skills at the required time, such as lack of qualified and experienced candidates. Thus, the PSET system should aim to appropriately respond to such challenges, especially in the wake of the COVID-19 pandemic. • For instance, with 26 public HEIs currently registered in the PSET system, differentiated into 11 general academic universities, nine comprehensive universities and six universities of technology, the EWSETA remains committed to finding sustainable and innovative ways of improving synergies in the quest to educate and prepare learners for the challenging and fascinating world of the energy and water sector. However, supply to the sector may be adversely affected due to delays in completions as a consequence of the COVID-19 pandemic. • Across all population groups, females constituted most enrolments within public universities during 2018. • In terms of respective major fields of study, public HEIs reported that most learners enrolled in the Science, Engineering and technology (SET) fields of study (320,671 learners). • Furthermore, data revealed that of the total number of completions, the highest number of graduates completed fields of study in SET (65,211); followed by Business and Management (60,458); Other Humanities (50,868); and Education (50,651). • The majority of completions were represented by females (almost two thirds, at around 63%), whilst males represented roughly 38% of completions across the various qualification types. • According to the data, a total of 271,704 learners were registered for SETA-supported programmes during the 2018/19 period, representing a slight increase of just under 1% in total registrations when compared with the previous year (2017/18). • With respect to artisanal training, SETA-supported trades recorded a total of 29,982 learners being registered during 2018/19, with the Gauteng province reporting the highest number of registrations across the nine provinces of South Africa, totalling 8,544 registrations. • Listed interventions were informed through analysis of national strategies and plans; analysis of WSP submissions; consultation with various secondary data sources such as the National Career Advice Portal and SAQA databases; external stakeholder interactions; as well as through internal engagements with respective EWSETA departments.
<p>4. EWSETA Partnerships</p>	<ul style="list-style-type: none"> • As a primary challenge, the EWSETA’s existing partnership model was previously based on long-term collaboration agreements for the duration of the NSDS III which came to an end in March 2020. • However, a number of these partnerships are continuing under the disposition of the NSDP. • Existing partnerships include, but are not limited to, the following: the Water Research Commission; Stellenbosch University; Department of Water and Sanitation; National African Energy Association Wholesalers of South Africa; Aspigon Energy and Umisa Business Services. • The abovementioned partnerships seek to address areas, for example, education and training objectives such as bursary funding and placement of learners in professional energy and water-related disciplines; support for qualification development; capacitation of SMMEs; and availing candidacy programme opportunities to respective learners. • Such partnerships also aim to enhance/support nuanced sectoral skill needs as a direct consequence of COVID-19. • The EWSETA seeks to partner with additional entities such as other public universities of technology such as CUT, SMMEs and emerging enterprises, emerging Cooperatives, TVET colleges, CETCs and additional sector employers. • These partnerships will aim to achieve (in the short to medium term) for example: qualification development; learner placements; skills development in entrepreneurship and other related skills; TVET and CETC capacitation/support; and other such imperatives.
<p>5. EWSETA Monitoring and Evaluation</p>	<ul style="list-style-type: none"> • The EWSETA continues to perform monitoring and evaluation (M&E) with respect to the implementation of ‘programmes’ linked to the Annual Performance Plan (APP), the Annual Operations Plan (AOP), the Quarterly Monitoring Report (QMR), the Annual Performance Report (APR) as well as previous EWSETA SSPs



Chapter	Key Findings
5. EWSETA Monitoring and Evaluation <i>contd.</i>	<ul style="list-style-type: none"> As depicted in the EWSETA M&E Cycle (refer to Figure 12), data derived from continuous monitoring of plans and reports such as the SP, APP, AOP, QMR and APR, supported by periodic evaluation undertakings, allow for the more effective monitoring and evaluation of programme outputs and outcomes. Thus, M&E enriches and supports research and subsequent planning activities. The extent to which the EWSETA has addressed the previous year's financial strategic priorities: <ul style="list-style-type: none"> The EWSETA should also explore ways of quantitatively increasing stakeholder participation in research undertakings (e.g. through increased WSP submissions) so as to further enrich the level and quality of data collected from the sector; The EWSETA should continue to expand on partnerships intended to address sectoral skill needs through the establishment of formal agreements; The SETA should continue to support workers by strengthening their current and future position within organisations; The SETA should continue to increase the number of businesses supported, particularly small and micro-sized entities; Continued support for balancing the equity paradigm should remain at the fore of EWSETA planning and implementation; The EWSETA should ensure the appointment of a qualified M&E specialist/practitioner, and finalise an M&E framework which will serve to enhance the M&E function; and The EWSETA must continue to remain oriented to national imperatives in order to more effectively meet the broader objectives of the National Development Plan (NDP).

6.3 RECOMMENDED PRIORITY ACTIONS

The table below presents recommended priority actions to be undertaken within the upcoming financial year. It is important to note that the outputs to be achieved are linked to the five-year [SSP] plan, as outputs are incrementally achieved over the five-year period.

Table 23: Recommended Priority Actions

Priority No.	Priority Action	Outputs to be achieved in the next financial year (linked to the five-year SSP)	Alignment to NSDP Outcomes
1.	<p>Sectoral Labour Market Demand Articulation:</p> <p>Continue to implement and coordinate research aimed at achieving outputs articulating labour market demand in the sector. The SETA should continue to focus on increasing its internal research capacity, thereby strengthening the implementation of evidence-based research as an effective means of identifying and projecting skills demand for the sector (short to medium term)</p>	<ul style="list-style-type: none"> Increased internal research capacity in the form of an increased number of researchers/support resources to carry out research functions, tasks and activities with the intention of further strengthening the research effort aimed at informing evidence-based planning and outcomes-based decision-making Outcomes-based assessments/evaluations conducted Prioritised research and sectoral labour market demand articulation Quantitatively increased number of stakeholder participants in research, Established collaborative research partnerships aimed at achieving specified outcomes (e.g. linking education and the workplace and increasing access to occupationally directed programmes) An evaluation study conducted Established a research data repository enabling effective dissemination of research findings, such as those emanating from evaluation studies, to internal and external stakeholders Recommendations made for enhanced career development services 	<ul style="list-style-type: none"> Outcome 1 Outcome 2 Outcome 3 Outcome 4 Outcome 8
2.	<p>Skills-related Partnership Development:</p> <p>Partnerships are needed to bring together</p>	<ul style="list-style-type: none"> Established EWSETA partnerships with the intention of identifying and addressing skill needs, particularly through workplace learning, as well as to support national imperatives (i.e. national strategies and plans) 	<ul style="list-style-type: none"> Outcome 1 Outcome 2 Outcome 3 Outcome 4



Priority No.	Priority Action	Outputs to be achieved in the next financial year (linked to the five-year SSP)	Alignment to NSDP Outcomes
2. <i>contd.</i>	stakeholders in the sector who will plan for and implement development imperatives to meet current and future skill needs (short to medium term)	<ul style="list-style-type: none"> • Mobilised of multiple stakeholders to more effectively identify and respond to sectoral skill needs driven by change drivers such as 4IR and COVID-19 • Transferred the required skills and competencies to learners through work integrated learning opportunities, especially those interventions addressing skills gaps resulting from COVID-19 • Linked education and work through formalised partnerships aimed at bridging the gap between theoretical education and practical application to address 4IR, climate change, regulations (including those emanating from COVID-19), and skills gaps interventions specifically addressing COVID-19 such as disaster management and digital skills • Developed qualifications registered with SAQA aimed at supporting national prescripts and change drivers • Continued facilitation of the above output in order to bridge the gap between theoretical education and practical skills application in the workplace • Prioritised establishment of the required partnerships with public HEIs and TVET colleges • Formed collaborative research partnerships which aim to enhance/support qualification development, as well as occupationally directed programmes in lieu of identified sectoral skill needs • Evaluated the level of mentorship activities experienced by learners, with reference to workplace-based learning interventions (e.g. through evaluation studies, etc.) • Established research collaborations with and in support of TVETs, SMMEs and Cooperatives and encourage support for entrepreneurial development • Increased focus on maximising workplace-based learning, particularly in areas where opportunities have been compromised by the effects of COVID-19 • Developed digital career guidance information that can be made available to young people on the EWSETA website and publicised utilising social media and other media channels, especially considering the need for electronic platforms as a means of disseminating knowledge in light of COVID-19 • Developed mechanisms for young people to access career guidance information • Made use of technology and the 4IR to more effectively and efficiently reach learners and stakeholders in the implementation of learning programmes. • Electronic response activities to meet the information needs of young people as a direct response to the skills development implications of COVID-19 • Promoted digital skills through, e.g., 'E-Learning' as enabled by 4IR, which requires digital skills for implementation as well as end-user interaction 	<ul style="list-style-type: none"> • Outcome 5 • Outcome 6 • Outcome 7 • Outcome 8
3.	Training of employed workers: Continue to implement Recognition of Prior Learning (RPL) programmes, and promote the retraining of workers in order to appropriately align learners to new/	<ul style="list-style-type: none"> • Promoted the professionalisation of existing workers who do not possess formal qualifications • Encouraged worker-initiated training in key areas such as 4IR and digital/technological skills • Aligned employee skills with those in high demand by training/retraining incumbents in relevant occupations/specialisations through, e.g. Learnerships and/or Skills Programmes 	<ul style="list-style-type: none"> • Outcome 1 • Outcome 2 • Outcome 3 • Outcome 7 • Outcome 8



Priority No.	Priority Action	Outputs to be achieved in the next financial year (linked to the five-year SSP)	Alignment to NSDP Outcomes
3. <i>contd.</i>	emerging skills within the sector (medium to long term)	<ul style="list-style-type: none"> • Promoted skills development in support of change drivers such as 4IR, climate change, COVID-19, etc. • Enhanced career guidance services offered to learners by increasing the footprint of EWSETA-coordinated events, engagements, etc. • Enhanced communication channels with learners and employers by way of digital platforms enabled by technology and the 4IR (especially considering COVID-19) • Increased support of partners by, e.g. continuously sharing EWSETA knowledge and insights gained through research and M&E tasks and activities • Involved partners in SETA research initiatives and undertakings within the PSET landscape • Sought to improve synergies between the EWSETA Quality Assurance function, SAQA and related Quality Councils, and EWSETA partners • Aligned employee skills with those identified across occupations in high demand by retraining incumbents in relevant occupations/specialisations, particularly in support of the 4IR and climate change • Enhanced career guidance services offered to learners across the sector • Provided ongoing analysis of skill needs to more effectively align learner needs to sectoral requirements • Increased the number of partnerships geared towards lifelong learning • Promoted research initiatives in collaboration with sector stakeholders in determining skill needs 	
4.	Small, Medium and Micro-Sized Enterprise (SMME) Development: Increase effort with respect to SMME development intended to support expanded employment in a more diverse sector (short to medium term)	<ul style="list-style-type: none"> • Small enterprises make up the majority of organisations within the energy and water sector; therefore, it is now more critical than ever to further enhance support for SMMEs (particularly micro and small entities) during these challenging times. Entrepreneurship skills should be given special attention, especially in light of 4IR • Increased support for SMMEs through capacitation services and skill needs analysis, particularly for new entrants (e.g. entrepreneurship development, digital skills capacitation enabled by 4IR, etc.) • Small business and cooperative research terms of reference (TOR) will take into consideration COVID-19 implications where possible • Supported the number of development opportunities granted to SMMEs in the form of grant funding and appropriate learning interventions aligned to key change drivers and the required skills • Ensured alignment between the skill needs of SMMEs and appropriate learning interventions • Increased the involvement of SMMEs in the identification of skill needs across the sector • Increased SMME involvement in the development of appropriate qualifications and related interventions where feasible • Promoted entrepreneurship skills within SMMEs designed to enhance sustainability by incorporating such skills within learning programmes • Enhanced career guidance mechanisms aimed at supporting SMMEs, especially new entrants to the sector 	<ul style="list-style-type: none"> • Outcome 2 • Outcome 3 • Outcome 6 • Outcome 8



Priority No.	Priority Action	Outputs to be achieved in the next financial year (linked to the five-year SSP)	Alignment to NSDP Outcomes
5.	A Balanced Equity approach: Continue to support equity imperatives, especially in key professional and technical occupations (long term)	<ul style="list-style-type: none"> Maintained a strong focus on balanced equity, where fair practices with respect to learner representation across EWSETA learning interventions were observed and ensured (with emphasis on the support of the previously disadvantaged, as well as the disabled) Improved representation within professional and technical learning programmes, especially those responding to the 4IR and climate change, as a means of promoting equitable representation across sectoral occupations in response to biased historic imbalances Explored ways of supporting and promoting learners in support of achieving equitable completion rates, with emphasis in learning interventions addressing imperatives informed by change drivers such as the 4IR, climate change, COVID-19 and regulations Promoted learning interventions which serve to address transformation imperatives Encouraged the previously disadvantaged to embark on learning interventions geared towards professional disciplines which support sustainable, long-term occupations within the sector 	<ul style="list-style-type: none"> Outcome 3 Outcome 4
6.	Monitoring and Evaluation Development: Establish a formal EWSETA monitoring and evaluation (M&E) framework (short term)	<ul style="list-style-type: none"> Enhanced M&E capacity within the EWSETA system Developed, updated and maintained a formal EWSETA-wide M&E framework Established advanced M&E tools, processes and procedures; Conducted quality monitoring, thereby ensuring data integrity and reliability; Provided quality data inputs into the planning activities of the EWSETA; Ensured appropriate monitoring of the EWSETA research agenda; Ensured evaluative studies/assessments were conducted within the short to medium term, which served as input into the EWSETA planning cycle. 	<ul style="list-style-type: none"> Outcome 1 Outcome 4
7.	National Imperatives: Strategic Measures to Support National Strategies and Plans (long term)	<ul style="list-style-type: none"> Continued support for national strategies and plans through effective service delivery Increased supply of professional engineers and environmental engineers for effectively supporting industrial development and the 4IR Supported skills required for increasing water networks, especially to previously unserved areas. Supported skills related to the energy mix. Increased the supply of qualified incumbents in fields such as hydrology and hydrogeology as South Africa's water scarcity challenges increase. 	<ul style="list-style-type: none"> Outcome 1 Outcome 2 Outcome 3 Outcome 4 Outcome 6

6.4 CONCLUSION

The identified priority actions play a pivotal role in guiding the SETA in its mandate of developing and training learners in areas that meet the current and future needs of the EW sector. However, there is a need for implementation of a multi-stakeholder-led engagement strategy for such priority actions to be effective. Furthermore, the EWSETA Sector Skills Plan must continue to find expression within its Strategic and Annual Performance Plans in order to maximise on the effectiveness of goal-orientated planning and implementation.



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ANNEXURE 1. Top Ten (10) Skills Gaps at Occupational Level – example occupations

Skills Gap	Occupation (examples)	Total
Technical (job-specific)	Electrical Engineering Technician	63
Financial Management	Operations Manager (Production)	23
Occupational health & safety skills	Electrician	18
Advanced IT and software	Finance Manager	16
Computer literacy	Supply and Distribution Manager	15
First-aid	Health and Safety Officer / Coordinator / Professional	12
Problem-solving	Fitter and Turner	12
Project management	Programme or Project Manager	11
Leadership	Electrical Engineer	11
Management	Power Generation Operations Manager	11







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