

PRODUCING OPPORTUNITY:

A Youth Labor Market
Assessment in South Africa's
Manufacturing Industry

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GLOSSARY OF TERMS

Apprenticeship: In the South African context, an apprenticeship is a combination of theoretical and workplace training in respect of a listed trade, which if completed, allows the learner to take a trade test (Republic of South Africa, 1998). There are currently four approved routes of theoretical and workplace training. For more information on these routes, see **Box 7** later in this report.

Artisan: A common definition of an artisan is an individual that is skilled at practicing a particular trade or handicraft. In South Africa, an artisan is “a person that has been certified as competent to perform a listed trade” (Republic of South Africa, 1998). A learner who seeks to become an artisan may apply to take a trade test after completion of approved theoretical and workplace training (see apprenticeship definition above). Statistics South Africa—the country’s national statistical service—quantifies the number of artisans through the Craft and Related Trades occupational group, though the dataset does not disaggregate those workers who are trade registered artisans. Artisans are classified as a skilled occupational group.

Broad-based Black Economic Empowerment (B-BBEE): As part of the South African government’s efforts to address the historical inequalities of apartheid, the Broad-based Black Economic Empowerment (B-BBEE) Act was passed in 2003. The objective of the Act is to advance economic transformation and enhance the economic participation of black people in the South African economy. B-BBEE is divided into nine subsections, each of which contains a Code of Good Practice that guides adherence and scoring. Businesses are scored annually by independent verification agencies, and assigned a B-BBEE recognition level. Companies in South Africa that provide services or goods to government or to parastatals must be certified as “empowered”, as required by the *Preferential Procurement Policy Framework Act*.

Employment Tax Incentive (ETI): The ETI—also known as the Youth Wage Subsidy—is an incentive aimed at encouraging employers to hire young and less experienced workers. The incentive, which came into effect in January 2014, reduces employers’ costs of hiring young people through a cost-sharing mechanism with the government, while leaving the wage the employee receives unaffected. The incentive is available for employees between the ages of 18 to 29 who were newly employed on or after October 2013, and who earn less than R6000 per month. The incentive ranges from 10 percent to 50 percent of young person’s salary, depending on the level of monthly remuneration.

Learnership: A learnership is a learning program registered with the Department of Higher Education and Training (DHET) which consists of a structured learning component and a practical work experience component of a specified nature and duration. The program leads to a qualification registered on the National Qualification Framework (see definition below) that is related to an occupation (SAQA, 2014). A learnership is therefore based on an agreement between a learner, a training institution and an employer.

Life Skills: IYF defines life skills as: *the abilities for adaptive and positive behaviors that enable individuals to deal effectively with the demands and challenges of work and everyday life*. In this respect, life skills encompass the ‘soft’ knowledge, skills, attitudes and behaviors that enable young people to lead healthier, more productive and engaged lives.

Machine Operators & Assemblers: Statistics South Africa (2001) defines this occupation as individuals whose main tasks require knowledge, experience and understanding of industrial and agricultural machinery and equipment. This includes the operation and monitoring of mining, processing and production equipment, as well as driving the vehicles, driving and operating mobile plants, or assembling productions from component parts. Machine Operators & Assemblers are classified as a semi-skilled occupational group, in comparison to artisans who are classified as skilled.

National Qualifications Framework (NQF): The NQF is a comprehensive system for the classification, co-ordination, registration, and publication of articulated and quality-assured national qualifications and part qualifications (SAQA, 2014). The South African NQF is a single integrated system comprised of three coordinated qualifications sub-frameworks: 1) General and Further Education and Training; 2) Higher Education; and 3) Trades and Occupations.

Organizing Framework for Occupations (OFO): The OFO is a coded classification system that encompasses all occupations in South Africa, and which is used as by the Department of Higher Education and Training (DHET) as a key tool for identifying, reporting and monitoring skills demand and supply in the South African labor market, as well as qualification levels by works in these respective occupations.

Part Qualification: A part qualification is an assessed unit of learning with a clearly defined purpose that is, or will be, registered as part of a full qualification on the NQF (SAQA, 2014).

Quality Council for Trades & Occupations (QCTO): The QCTO was established in 2010 to oversee the design, implementation, assessment and certification of occupational qualifications (occupation-specific training programs that include both theoretical and workplace training). The QCTO is one of three Quality Councils that ensure quality and standards of education and training in South Africa that is aligned to the NQF (see definition above). The QCTO has been tasked to work with employers and other social partners to develop new occupational unit standards and qualifications, including for training programs relevant to artisan and machine operator and assembler occupations.


Racial Categories in South Africa: Statistics South Africa uses the following racial categories in its surveys: black African, Coloured (individuals of mixed ethnic origin), Indian/Asian, white and other. For historic reasons, and within contemporary South African public policy, the term 'black'—when used alone in the context of race and ethnicity—generally encompasses black Africans, Coloureds and individuals of Indian/Asian origin, all of whom are considered historically disadvantaged racial groups due to the legacy of apartheid.

Scarce Skills: Scarce skills are occupations that Sector Education Training Authorities (see definition below) have identified as having a current or anticipated shortage of qualified and experienced people within the South African labor market.

Sector Education Training Authorities (SETAs): Recognizing the need to enhance national skills development, in 1998 the South African Parliament ratified the *Skills Development Act*, which defined a new Sector Education and Training Authority (SETA) system. There are currently 21 SETAs, each which operates within its own clearly defined economic sector. The SETA system is under the authority of the Department of Higher Education and Training (DHET). Each SETA collects skills levies (calculated at 1% of monthly payrolls) from employers within their respective sector, and with these levies, makes grants available within the sector for skills development training programs.

Strategic Infrastructure Projects (SIPs): The SIPs are 18 planned projects emanating from the South African government's approval of the 2012 *National Infrastructure Plan* and the subsequent creation of the Presidential Infrastructure Coordination Commission. The government anticipates investing R850 million over the next three years toward the SIPs, and R4 trillion over 15 years, which are expected to create new jobs in construction, operations, maintenance and manufacturing of components and supplies, as well as unlocking new investment in sectors such as mining and agro-processing.

Technical Vocational Education and Training (TVET) College: A TVET college is a public or private institution that is registered with DHET as a technical and vocational education and training college. The public TVET



college system includes 50 colleges with over 260 campuses, and nearly 1 million students as of 2014. TVET colleges offer a mix of vocational and occupational training qualifications, include the theory-based National Technical Education Certificate qualifications (referred to as NATED or ‘N’ courses), as well as the National Certificate Vocational [NC(V)] courses that combine theory and practical training. For further information on qualifications delivered through TVET colleges, see **Box 4** later in this report.

Unemployment: The South African government’s official definition of unemployment is based on the following criteria: 1) a person must be completely without work; 2) currently available to work; and 3) taking active steps to find work. Discouraged job seekers are therefore not included in the official definition. (Statistic SA, 2014a)

Youth: South Africa’s *National Youth Commission Act of 1996* and *National Youth Policy of 2000* define young people as individuals between the ages of 14 and 35 years.

EXECUTIVE SUMMARY

Purpose & Methodology

Youth unemployment is a major challenge in South Africa. There are currently over 20 million active labor force participants in the country, of which nearly half—48 percent—are young people. In total, 34 percent of youth labor force participants—3.4 million young people—are unemployed, an increase of 3 percent since 2008, and more than double the adult unemployment rate of 16 percent. These rates do not include the more than 1.5 million young unemployed South Africans classified as discouraged job seekers. Black youth and young women are especially vulnerable to unemployment.

In response to this challenge, Irish Aid commissioned the International Youth Foundation (IYF) to undertake a youth labor market assessment in South Africa's manufacturing sector. The purpose of the assessment was to identify the most prevalent occupations within the manufacturing sector that are accessible to youth—including Technical Vocational Education and Training (TVET) college students and graduates—and to recommend training approaches to further enhance young women's and men's preparedness for, and access to these job opportunities.

The manufacturing sector was selected due to its prioritization under the South African government's economic growth and job creation strategies, and because it is already a major employer of youth in the country. This assessment focused specifically on the metals/heavy machinery and food and beverage manufacturing sub-sectors, though the majority of findings are applicable to the broader manufacturing sector. This study is therefore of particular relevance to government institutions, industry bodies and employers engaged in training young women and men for scarce skill technical and vocational occupations in the manufacturing industry.

This study was structured on IYF's youth labor market assessment methodology, which combines the rigor of sound data collection and analysis, the inclusion of youth voices and the identification of employers' recruitment priorities, challenges and preferred training models, resulting in a nuanced understanding of: 1) youth aspirations; 2) employer demands; and 3) models for further developing young people and bridging them into identified employment opportunities. In total, researchers interviewed 42 representatives from government institutions, industry associations, labor unions and individual employers. In addition, 28 youth in employment and training were interviewed.

Summary of Findings & Recommendations

The following section provides a snapshot of the findings and recommendations that emerged from this youth labor market assessment.

Opportunities for Young People

Sectors: The manufacturing sector in South Africa has faced growth challenges over the past decade, but is currently the fourth largest sectoral contributor to the nation's GDP, and the fourth largest sectoral employer of youth. The metals/heavy machinery and food and beverage sub-sectors, in particular, employ a significant proportion of employees in the broader manufacturing sector.

Projected Demand: Artisan (skilled) and machine operator (semi-skilled) occupations comprise 40 percent of projected recruitment demand, the majority of which is replacement demand rather than new positions. The government's *New Growth Path* policy and Strategic Infrastructure Projects (SIPs), however, have the potential to create a significant number of new jobs in the manufacturing sector.

Occupational Demand: For artisans, the study identified employer demand for millwrights; tool and die makers; double coded welders; instrumentation technicians; air-conditioning and refrigeration mechanics; boilermakers; electricians; fitters and turners; heavy equipment mechanics; riggers; and sheet metal workers. For machine operators, the study identified employer demand for crane, hoist and lift operators, professional drivers, and packing and process machine operators.

Geography of Demand: The majority of firms operating in the two sub-sectors targeted under this study are located in Gauteng Province, with most of the remaining firms based in the Western Cape and KwaZulu-Natal Provinces. The only specific geographic areas in which employers indicated that there could be significant future recruitment needs are in the country's Special Economic Zones and SIP areas.

The Demand Side: What Employers Want and Need

Qualifications: A matric certificate or its equivalent is a minimum pre-requisite for entry into employment in the two sub-sectors, with some companies looking for candidates with a matric along with technical theory qualifications. For apprentices, employers generally recruit candidates with trade theory knowledge, as they prefer to deliver practical training at their own facilities. For artisan recruitment, employers indicated that they are increasingly looking for highly-skilled, experienced artisans. With regards to machine operators, employers often promote promising employees from more elementary occupations. More skilled machine operators therefore have a better chance of career progression within the industry.

Cross-cutting skills: Employers expressed a demand for youth entrants that can more quickly learn how to put trade theory into practice. Employers also require candidates with strong numeracy and literacy competencies. Employers indicated that young people's skills gaps in these areas have made apprenticeship more challenging, and are impacting on apprenticeship retention and learner's successful completion of their artisan trade test. In addition, based on the responses of most employers and stakeholders, all youth would benefit from enhanced life skills (inclusive of work readiness skills).

Commitment: Employers are looking for young candidates with a much stronger interest in and commitment to their trade and employer.

The Supply Side: Youth Training Provision in the Sector

TVET Colleges: The South African government is making significant efforts to enhance the quality and scale of the public TVET college system, particularly to contribute towards the supply of qualified artisans for industry, and to contribute towards increases in youth employment. The TVET college system, which functions as an alternative secondary schooling system, has nearly 1 million students, and especially caters to youth from disadvantaged backgrounds.

Employers' Preferred Training Models: Most employers prefer to deliver practical training to new entrants through their own internal training academies, or through private sector training providers with whom they have long-standing partnerships. For this reason, employers often recruit machine operator and apprenticeship candidates with trade theory knowledge rather than those with practical skills training.

Training Challenges & Incentives: Despite some positive experiences, employers have limited confidence in TVET college graduates, though many are looking for ways to more strategically engage with the TVET college system to support higher-quality delivery of training. The Sector Education Training Authorities (SETAs) are influential in this area, since they increasingly fund employers to recruit TVET college graduates for learnership, apprenticeship and internship opportunities.

Innovative Training Models & Partnerships: There are a number of national initiatives that are bringing together government, industry, civil society and TVET colleges to enhance new artisan development. These initiatives often lack, however, an integration of life skills training for youth, as well as specific approaches to engaging and empowering young women.

Barriers & Opportunities for Young Women

Low proportion of Women in the Sector: Women are a minority of the workforce in the manufacturing sector, and are an even smaller minority of the workforce employed in artisan and machine operator occupations. TVET college courses of relevance to the manufacturing sector are also dominated by men, with women comprising only 25 percent of course enrollees.

Opportunities for Women: There is scope to significantly increase the proportion of young women participating in technical/vocational training in the manufacturing sector, and to increase the proportion of young women employed in machine operator and artisan occupations. While employers indicated that men, on average, score higher on physical strength and endurance tests that are required for certain artisan occupations, this reason alone is not sufficient to explain the low proportion of women in the sector. This is further evidenced by this study's finding that a significant number of scarce skill artisan occupations, as well as most machine operator positions, do not require a high degree of physical strength, but do require a high degree of visual acuity and dexterity—areas where women typically score higher than men.

Barriers for Women: There are a number of barriers faced in increasing the proportion of women training for, and employed in artisan and machine operator occupations. A significant issue is individuals', households' and communities' gender-typing of artisan and machine operator occupations, which influences and informs the career choices and aspirations of young women and young men. This is often further reinforced by gendered recruitment biases at the employer level, as well as workplace cultures and norms that discourage female employment in artisan and machine operator roles. Changing these attitudes, perceptions and biases will require a multi-faceted approach, which will take time. Currently in South Africa, there are no national training initiatives that explicitly focus on increasing the proportion of women employed in artisan and machine operator occupations.

Recommendations

Enhance TVET College Training Quality: Enhancing the quality of holistic training at public TVET colleges, including occupational trade theory, practical training, numeracy, literacy and life skills training is a critical priority, given that the system has been prioritized for developing new artisans, and that it already operates at a national scale. This study recommends a continued focus on strengthening both the National Technical Education Certificate qualifications ('N') courses and National Certificate Vocational [NC(V)] courses. Expanded TVET and employer engagement platforms with clear objectives and practical operational models are critical to this recommendation.

Integrate Life Skills into Training Programs: Given the ubiquity of employers' responses related to life skills and work readiness deficits amongst youth, this study recommends that life skills should be integrated into all TVET college courses, part qualifications, learnerships and apprenticeships, including the new Quality Council for Trade & Occupation (QCTO)-registered qualifications.

Strengthen Career Guidance Services: Young women and men would benefit from strengthened career guidance services that help make sense of the complicated set of technical and vocational training and employment pathways in South Africa, and which build young people's passion for these opportunities. Career guidance services should also be designed to more explicitly raise young women's awareness of promising opportunities in the manufacturing sector, but only if paired with initiatives that also engage employers on these issues and reduce recruitment biases.

Create an enabling environment for young women: There is significant scope for integrating a more direct focus on increasing the proportion of young women participating in artisan and machine operator training and employment. IYF recommends that government, in partnership with industry and civil society, integrate gender equity strategies into all national artisan development initiatives. Specific activities could include more gender-equitable career guidance services; addressing physical ability requirements where relevant; ensuring that physical ability tests for employment are not overused; working with employers to address recruitment biases and create inclusive workplace cultures; and integration of gender targets into SETA sector skills plans and SIPs.

1 INTRODUCTION

In September 2014, Irish Aid commissioned the International Youth Foundation (IYF) to undertake a youth labor market assessment in South Africa’s manufacturing sector. The purpose of the assessment was to identify the most prevalent occupations within the manufacturing sector that are accessible to youth—including Technical Vocational Education and Training (TVET) college students and graduates—and to recommend training approaches to further enhance young women’s and men’s preparedness for, and access to these job opportunities.

The assessment sought to answer the following research questions:

1. Which sub-sectors and semi-skilled and skilled occupations within the manufacturing sector provide the most job opportunities for unemployed youth, and in which geographies?
2. What are the skills and knowledge gaps that prevent young women and men from accessing these identified job opportunities?
3. What are effective training models and approaches for addressing identified knowledge and skills gaps, and do training providers require support to enhance their existing programs? Related, what policy and financial incentives are influencing training provision in South Africa?
4. What barriers, in particular, are preventing more young women from accessing and succeeding in employment in the sub-sectors and occupations targeted under this study? What approaches might help to reduce these barriers?

Based on an initial macro-trends analysis, IYF refined the labor market assessment scope to focus specifically on the metals/heavy machinery and food and beverage manufacturing sub-sectors within the broader manufacturing sector, and on machine operator and artisan occupations within these sub-sectors that are considered scarce skills within the context of the South African labor market. How IYF arrived at these targets is detailed further in the next section of this report.

Following the macro-trends analysis, researchers conducted interviews between November 2014 and January 2015 with South African government and industry association stakeholders, labor unions, individual employers and training providers, as well as focus group discussions with young women and men employed and in training in the targeted occupations and industries. This report is based on findings from both the macro-trends analysis and primary data collection phases of the assessment.

2 COUNTRY CONTEXT & MACRO-TRENDS ANALYSIS

Prior to implementing the youth labor market assessment, IYF conducted a macro-trends analysis to narrow the sectoral and occupational focus of the study. In conducting the macro-trends analysis, IYF drew on secondary data to examine: 1) the context of youth unemployment in South Africa; 2) the government's economic growth and job creation strategies and priorities; and 3) the recent performance of the country's manufacturing sector and related sub-sectors. In addition, IYF synthesized a range of findings from recent skills development studies and evaluations in South Africa's manufacturing sector, for triangulation with the findings of this assessment.

The macro-trends analysis therefore helped to ensure that this labor market assessment was not duplicative of recent studies in South Africa's manufacturing sector, but rather functioned as a complement to these studies. In particular, this study provides a more nuanced and qualitative assessment of barriers that prevent unemployed young women and men from accessing current and projected employment opportunities in the manufacturing sector, as well as potential solutions to enhance young people's preparedness for these opportunities.

2.1 South Africa's Youth Unemployment Challenge

South Africa's youth unemployment rate has increased significantly since the 2008 global financial crisis, and is of particular concern to policy makers in the country. There are currently over 20 million active labor force participants, of which nearly half—48 percent—are young people. In total, 34 percent of youth labor force participants—3.4 million young people—are unemployed, an increase of 3 percent since 2008, and more than double the adult unemployment rate of 16 percent (Statistics SA, 2004a). These rates do not include the more than 1.5 million young unemployed South Africans classified as discouraged job seekers.

The legacy of apartheid is evident when disaggregating unemployment rates by race. The unemployment rate amongst black African, Coloured and Indian/Asian youth is 39 percent, 35 percent and 16 percent, respectively, as compared to an unemployment rate of 10 percent amongst white youth. Young women are also especially vulnerable to unemployment in South Africa, with 40 percent of young women unemployed in 2014, compared to 33 percent of young men.

These high rates of youth unemployment persist despite the fact that there has been an increase in the share of young people with matric and higher qualifications between 2008 and 2014 (from 48 percent to 53 percent, respectively), a disconnect which reflects “structural problems in the labor market due to the mismatch between the skills available and those needed [by employers]” (Statistics SA, 2014a, p.11).

Related to the skills mismatch challenge, previous IYF labor market assessments in South Africa have found that, despite the high rates of youth unemployment, employers in a range of

Box 1: South Africa's youth employment snapshot

- Youth comprise 48 percent of active labour force participants. Nearly 3.4 million of these youth are unemployed.
- Youth unemployment rates by gender:
 - » Women: 40 percent
 - » Men: 33 percent
- Youth unemployment rates by race:
 - » Black Africans: 39 percent
 - » Coloured: 35 percent
 - » Indian/Asian: 16 percent
 - » White: 10 percent

Source: Statistics SA, 2014a

sectors face difficulty in finding qualified young candidates for entry-level employment, resulting in high rates of staff turnover and a lack of staff progression from entry-level to junior management and highly-skilled technical fields—where qualified human resources are severely constrained.¹

The youth unemployment challenge, while problematic in the short-term, also has longer-term employment and economic implications. As noted by DPRU (2012, p.11), long-term unemployment can result in significant negative consequences for individuals' future employability, particularly as *“workers' skills are eroded through lack of opportunity to exercise them, while technological change may make the existing skills of the long-term unemployed obsolete.”* High rates of youth unemployment therefore threaten to perpetuate long-term adult unemployment, impacting individuals' socio-economic well-being, as well as the human resource capacity necessary to drive business growth in the country. It is within this context that a broad range of South African policy makers, industry and civil society stakeholders are working to address this challenge.

2.2 Economic Growth & Job Creation Policies

The Government of South Africa's *National Development Plan* (NDP) aims to eliminate income poverty and significantly reduce inequality by 2030, including through raising employment through more rapid economic growth, improving the quality of education and skills development, and building the capability of government to play a larger developmental and transformative role. The NDP seeks to shift the growth trajectory and inclusivity of an economy that currently has *“features of a low-growth, middle-income trap, characterized by lack of competition, large numbers of work seekers who cannot enter the labor market, low savings and a poor skills profile”* (NPC, 2011, p. 28).

A range of transformative actions are proposed in the NDP, some of which include:²

- Increasing exports, including in the manufacturing, agro-processing, mining and construction sectors;
- Developing more efficient and competitive national infrastructure;
- Creating an expanded skills base through better education and vocational training; and
- Developing a labor market that is more responsive to economic opportunity, including through lifelong learning and career advancement.

The NDP also highlights a number of interventions to specifically increase youth employment, including:³

- Developing a high-quality technical/vocational education pathway for students after Grade 8;
- Expanding the role of state-owned enterprises in training new artisans and technical professionals;
- Expanding the learnership training system; and
- Creation of a tax incentive for employers to reduce the initial cost of hiring young labor-market entrants.

These and other priorities in the NDP were given further expression in the government's *Medium Term Strategic Frameworks* (2009 to 2014 and 2014 to 2019), with skills development given particular emphasis in order to address the youth unemployment challenge and to support economic growth objectives.

It is within this context that the South African government also approved the *New Growth Path* (NGP) in 2011, which aims to support more sustainable economic growth and job creation in the country by enabling the productive sectors of the economy—including agriculture, manufacturing and mining—to drive growth, a strategy given further emphasis through the Department of Trade and Industry's *Industrial Policy Action Plan* (IPAP2).

1 See, for example, IYF (2013), *Analysis for ICT-Enabled Youth Employment in Ghana, Kenya and South Africa*, Baltimore: IYF and Rockefeller Foundation.

2 See NPC, 2011, p.28-30 for additional inclusive economic growth priorities.

3 See NPC, 2011, p.20 for additional priority actions related to youth employment.

Additional policies associated with the NGP include the *National Skills Development Strategy III* (NSDS III), *National Skills Accord and Youth Employment Accord*. In addition, DTI revised the *Broad-based Black Economic Empowerment* (B-BBEE) policy and scorecard as stipulated under the NGP, with an objective to further incentivize employers to invest in employment creation and skills development, black entrepreneurs and employment equity.

The overarching priorities and targets of South Africa’s integrated policy framework include:

- **Job Creation:** Creation of 11 million new jobs by 2030, including 5 million new jobs by 2020.
- **Economic Sectors:** Supporting and enabling productive sectors to drive economic growth and job creation, particularly through infrastructure development and maintenance, agro-processing, mining, manufacturing and the green economy.
- **Skills Development:** Increasing the number of individuals with intermediate to high-level skills, in order to support national growth strategies. The training and certification of new artisans is an especially high priority, given the crucial role of artisans across the productive sectors of the economy, as well as current and anticipated shortfalls of certified artisans available in the workforce. By 2030, South Africa aims to certify 30,000 new artisans annually.
- **Youth & Women:** Enabling job creation for black youth—particularly black African youth—is an explicit strategic focus across government policy. In addition, the NDP states that “*the transformation of the economy should involve the active participation and empowerment of women*”, while the NSDS III stipulates that all skills development initiatives must promote gender equity in access, training and career progression.
- **Training Providers:** There is an especially strong focus on enhancing the quality and scale of the Technical Vocational Education Training (TVET) college system, particularly to contribute towards new artisan development. The government aims to increase TVET college enrollments to 1 million students by 2015 and 2.5 million students by 2030. The important role of industry in these efforts is also emphasized, including employers’ provision of workplace-based training to existing employees, as well as internship and apprenticeship placements to TVET college graduates. State-owned companies are also directed to train artisans above their own recruitment needs, in order contribute towards broader skills development objectives.
- **Enabling Stakeholders:** A range of public institutions are positioned as enabling stakeholders to achieving the aforementioned priorities. A key mechanism is the Human Resource Development Council (HRDC), which coordinates with government, business, labor and academic stakeholders to ensure human resource development initiatives align with the priorities of the NGP and related policies. The Department of Higher Education and Training (DHET), which manages the HRDC, also oversees a number of important enabling institutions. These include the public TVET college system, the National Skills Fund and the 21 Sector Education Training Authorities (SETAs). The SETA system is instructed to have a streamlined focus, with a mandate to fund internships, learnerships and apprenticeships for graduates of education institutions, and particularly graduates from the public sector TVET college system.

Box 2: In which sectors are youth currently employed?

Four sectors absorb 71 percent of employed youth in South Africa:

- Wholesale & Retail: 27 percent
- Community, social & personal services: 16 percent
- Financial and business services: 15 percent
- Manufacturing: 13 percent

Source: DPRU, 2012

The Strategic Infrastructure Projects (SIPs), if fully implemented, will be an important enabling initiative for the above strategies. In 2012, the South African government adopted the *National Infrastructure Plan*, which is aligned to the NGP’s strategy to promote growth and job creation through infrastructure-led development. The Presidential Infrastructure Coordination Commission (PICCC) was subsequently created to coordinate implementation of the *National Infrastructure Plan*, and particularly the 18 designated Strategic Infrastructure Projects (SIPs)—many of which are national in scope.

The government anticipates investing R850 million over the next three years toward the SIPs, and R4 trillion over 15 years. These projects are expected to create new jobs in construction, operations, maintenance, and manufacturing of components and supplies, as well as unlocking new investment in sectors such as mining and agro-processing. At the peak of implementation, 205,000 workers are projected to be required, over 100,000 of which are classified as workers in scarce skill occupations (EDD and DHET, 2014). The TVET colleges are emphasized as a key institution for addressing scarce skill gaps related to SIP implementation, and the infrastructure projects themselves are considered an important training space for new artisans and employees in other semi-skilled to high-skilled occupations.

2.3 Selection of Target Sectors and Occupations for this Study

As noted in the preceding section, supporting and enabling a robust productive sector is central to the South African government’s economic growth and job creation strategies. Given the manufacturing sector’s particular prominence in the South African economy and in employing youth (as noted in **Box 2**), IYF and Irish Aid agreed to focus this study specifically on manufacturing, though many of the occupations explored—and how youth can be better prepared to access employment in these occupations—are of relevance to other productive sectors in the economy.

In narrowing the selection of manufacturing sectors and occupations to study more deeply in this assessment, IYF applied the following criteria to its macro-trends analysis:

1. Manufacturing sub-sectors with significant current or projected recruitment demands;
2. Occupational categories within the manufacturing sector that are accessible to unemployed young women and men without university diplomas and degrees, and particularly semi-skilled to skilled scarce skill occupations; and
3. Semi-skilled to skilled occupational categories common to multiple manufacturing sub-sectors.

2.3.1 Manufacturing Sector Structure & Performance

South Africa has a modern, diversified manufacturing sector that plays a prominent role in both GDP and employment creation. **Table 1** presents the five largest manufacturing divisions, which combined are responsible for 86 percent of annual manufacturing production in the country (Statistics SA, 2014d).⁴

TABLE 1: FIVE LARGEST MANUFACTURING DIVISIONS (by percentage contribution to overall production)

Division	Contribution
Food and beverage manufacturing	24 percent
Petroleum, chemical products, rubber and plastic products	23 percent
Basic iron and steel, metal products and machinery	20 percent
Wood and wood products, paper, publishing and printing	10 percent
Motor vehicles, parts and accessories and other transport equipment	9 percent

⁴ Additional manufacturing divisions include glass products; furniture; textiles and clothing; electrical machinery; and communication and professional equipment.

Between Q2 2013 and Q2 2014, South Africa's manufacturing production grew by only 0.5 percent (Statistics SA 2014d). Low growth in the sector was due to a variety of factors, including labor stoppages in the mining and manufacturing sectors, power outages, and slower growth in key export markets, particularly Europe and China. Performance varied by sub-sector, however, with metals and machinery production increasing by 4 percent, and food and beverage manufacturing production increasing by 3 percent, while petroleum, chemicals, rubber and plastics production decreased by 3 percent (Statistics SA, 2014d).

The above mentioned figures point to continued growth challenges in the sector. As noted by the Manufacturing, Engineering and Related Services SETA (merSETA) (2013), the manufacturing sector experienced a retraction in 2003, followed by a massive recession between Q3 2008 and Q2 2009 that was associated with the global economic downturn. Growth returned to the sector in 2009, but with periodic quarters of negative growth between 2010 and 2013. While the sector continues to face growth challenges, it is the fourth largest contributor to the country's GDP, and is the largest GDP contributor amongst those industries in the broader productive sector (Statistics SA, 2014e).

In addition to the manufacturing sector's continued prominence and importance in South Africa's economy, specific sub-sectors are also regarded as more resilient to economic downturns, while others are expected to benefit more in the short-term from the SIPs. These include:

- **Food and beverage manufacturing:** Total production output in South Africa's food and beverage manufacturing sector has grown steadily over the last two decades, and the sector is generally less affected by economic fluctuations (FoodBev SETA, 2013). In addition, stimulation of the agro-processing industry—both for domestic consumption and export—is one of the focus areas of the SIPs, which if implemented, will provide medium to longer-term growth opportunities for employers in this sub-sector (PICC, 2014).
- **Metals/heavy machinery:** Implementation of the 18 SIPs will be a massive endeavor, given the wide array of national and geographic-specific infrastructure projects, including energy; ports, rail and pipelines; roads; public transport; communication; and water and sanitation infrastructure. There will be significant need for the manufacturing and servicing of heavy machinery, as well as manufacturing of metal products needed for inputs and components of these infrastructure projects (PICC, 2014).

2.3.2 Employment in the Manufacturing Sector

In total, there are 1.75 million employees in South Africa's manufacturing sector (Statistics SA, 2014b). The following are South Africa's two largest manufacturing SETAs, in terms of the number of companies and employees they represent:

1. **The Manufacturing, Engineering and Related Services SETA (merSETA)**, which operates five chambers: metals (including heavy machinery), plastics, automobiles (local assemblers of new vehicles), motor (including automotive components manufacturing and motor retail and services), and tires.
2. **The Food and Beverage Manufacturing SETA (FoodBev SETA)**, which operates five chambers. Given the high degree of consolidation in the food and beverage manufacturing sub-sector—with just 6 percent of firms employing 85 percent of all workers in the sector—this study considers all five chambers together.

In terms of total employment, Table 2 ranks the merSETA and FoodBev SETA chambers by their overall number of employees (merSETA, 2013; FoodBev SETA; 2013).⁵

⁵ Chamber employment figures are based on employers that submitted annual Workplace Skills Plans to their respective SETAs, and therefore are not indicative of all employees in the manufacturing

TABLE 2: EMPLOYMENT BY MERSETA AND FOODBEV SETA CHAMBERS

Chamber	Employees
Metals	335,000
Motor	172,000
Food and beverage manufacturing	161,000
Plastics	54,000
Auto	32,000
Tires	7,600

From this rapid analysis, it is evident that the metals (including heavy machinery) sector is by far the largest employer in the broader manufacturing sector, with the motors and food and beverage sub-sectors both nearly tied for second place. The food and beverage sub-sector is also the largest contributor to manufacturing production in the country, with metals/heavy machinery ranked third after plastics. The metals/heavy machinery sub-sector is expected to benefit in the short-term from SIP implementation, while the food and beverage industry is anticipated to benefit in the medium to long-term as targeted agro-processing infrastructure projects are completed.

For these reasons, IYF and Irish Aid decided to focus this youth labor market assessment specifically on the metals/heavy machinery and food and beverage manufacturing sub-sectors. The majority of the findings, however, are relevant for employers and training providers in the broader manufacturing sector.

2.3.3 Priority Occupations for Youth Accessibility & Skills Development

IYF chose to further focus this assessment on artisan (skilled) and machine operator (semi-skilled) occupations for the following reasons:

- **Employment Trends:** Within the broader South African economy, there is a trend toward employment growth in skilled to high skilled occupations, while growth in low-skilled occupations has remained unchanged (DPRU, 2013). Related, merSETA's baseline recruitment demand projections for years 2013-2018 is estimated at nearly 100,000 new hires—inclusive of new positions and replacement demand—of which 62 percent are skilled and semi-skilled occupations (merSETA, 2013). Artisan and machine operator occupations alone account for 40 percent of overall projected demand in the manufacturing sector.
- **National Skills Priorities:** As noted earlier in this report, the South African government's economic growth and job creation strategies require an increased number of individuals with intermediate to high-skill levels. The training of new artisans is a particularly high priority.
- **Accessibility to Unemployed Youth without Tertiary Education:** According to South Africa's Organizing Framework for Occupations, machine operator and artisan occupations are both categorized at National Qualifications Framework (NQF) levels 3-5 (DHET, 2012).⁶ In practice, this means that both occupations are accessible to individuals without tertiary education qualifications.

⁶ NQF level 3 equates to Grade 11 or a National Certificate Vocational certificate level 3. NQF level 4 equates to Grade 12 (matric) or a National Certificate Vocational certificate level 4. NQF level 5 equates to a Higher Certificate or an Advanced National Vocational Certificate.



2.3.4 Sub-Sectors & Occupations Targeted for the Youth Labor Market Assessment

Based on the analysis presented in this section, IYF and Irish Aid agreed to focus the youth labor market assessment on:

1. **Manufacturing sub-sectors:** metals/heavy machinery and food and beverage manufacturing.
2. **Occupations:** Scarce skill artisan and machine operator occupations.

3 METHODOLOGY

Following IYF and Irish Aid’s selection of the target manufacturing sub-sectors and scarce skill occupations (as noted in the preceding section), the labor market assessment continued to the primary data collection phase through interviews with key informants.

The primary research phase was structured on IYF’s youth labor market assessment methodology, which combines the rigor of sound data collection and analysis, the inclusion of youth voices and the identification of employers’ recruitment priorities, challenges and preferred training models, resulting in a nuanced understanding of: 1) youth aspirations; 2) employer demands; and 3) models for further preparing young people for identified employment opportunities.

IYF’s adapted labor market assessment tools used in this study are included in Annex 2. Researchers used these tools to guide semi-structured qualitative interviews with key informants.

3.1 Key Informants

After finalizing the labor market assessment tools, a research team was assembled. The team conducted key informant interviews with representatives from the categories noted in **Table 3**. The full list of stakeholders, employers and training providers interviewed are noted in **Annex 1**.

TABLE 3: NUMBER OF KEY INFORMANTS INTERVIEWED (BY CATEGORY)

Key Informant Category	Number of Interviews
Government institutions	4
Industry associations	5
Labor unions	3
Employers	18
Training providers	11
Young people in employment or training	28 youth (25% young women) interviewed through 4 Focus Group Discussions

The research team used a ‘rolling’ approach to key informant interviews, as depicted in **Figure 1** below. The team started by interviewing stakeholders, which included labor unions, employer associations, SETAs and relevant government departments. These stakeholders assisted with the identification of employers for this study, and these employers—once interviewed—assisted with the identification of relevant training providers and with organizing youth focus group discussions.

FIGURE 1: APPROACH TO SELECTING KEY INFORMANTS



Most of the informants interviewed were located in Gauteng Province.⁷ The focus on Gauteng was due to three reasons:

1. The majority of companies and employees in both the merSETA and FoodBev SETA chambers are located in Gauteng (merSETA, 2013; FoodBev SETA, 2013);
2. South Africa's national government departments, labor unions and many industry associations tend to be headquartered in Gauteng; and
3. The combination of the above two factors facilitated the most efficient data collection and analysis.

3.2 Data Analysis

The following data analysis processes were used to analyze and synthesize the primary research:

- **Thematic Review Workshops:** The full research team had two workshops to analyze collected data, drawing directly from the interview transcripts. The first workshop occurred mid-way through the study in order to identify initial findings and themes to be investigated more deeply in subsequent interviews. The second workshop occurred after all interviews were completed, and focused on consolidating notes under each key research question.
- **Consolidation of Notes, Analysis & Report Writing:** The consolidated notes were captured in Excel and further analyzed, in order to identify themes and recommendations emerging from the data. The research team used this analysis to synthesize the primary research data, which contributed to the writing of the study. The final report includes the key findings from the primary research, triangulated with labor market data and other contextual information from the macro-trends analysis and review of other relevant secondary data sources.

3.3 Challenges

The research team encountered the following challenges during the primary research phase:

- **Timing of the study:** The majority of the key informant interviews took place between November 2014 and January 2015. This proved to be a challenging time to schedule meetings, as it coincided with stakeholders' and employers' end-of-year organizational priorities, as well as the dual South African summer and New Year holiday period, during which most employers and training providers are closed. This timing also impacted researchers' ability to interview TVET colleges, as the end-year exam and January/February student enrollment periods meant that most college staff had other more immediate priorities.
- **Research fatigue:** Some employers displayed 'research fatigue', in that there have been a number of studies undertaken in the manufacturing sector related to skills planning, and it appears that many of the same employers were contacted for these studies.
- **Industry Restructuring:** Given the recent growth challenges in the manufacturing industry, some companies contacted indicated that they were currently restructuring and had instituted training holds, and were therefore not currently available to participate in this study.

⁷ Gauteng Province is a highly urbanized province of South Africa, with a population of 12.3 million as of 2011—the highest provincial population in the country—despite only containing 1.5 percent of the country's land area. Gauteng's districts include the City of Johannesburg, the City of Tshwane (which includes Pretoria), Ekurhuleni, Sedibeng and West Rand. Ekurhuleni is often considered the manufacturing center of South Africa.

- **Scheduling interviews with small and medium-sized firms:** While researchers contacted a large number of small and medium-sized firms, these companies were generally less available to participate in the study, due to their small human resource and skills development teams.

Despite these challenges, the research team secured sufficient interviews with a representative sample of stakeholders, employers, training providers and youth, which together with the secondary labor market data, facilitated the completion of this comprehensive youth labor market report.



4 WHERE ARE THE JOBS?

Which sub-sectors and semi-skilled and skilled occupations within the manufacturing sector provide the most job opportunities for unemployed youth, and in which geographies?

As noted in **Section 2**, the manufacturing sector in general has faced growth challenges—including the 2008 recession and subsequent periodic quarters of negative growth. Despite this, the sector is both the fourth largest contributor to South Africa's GDP and fourth largest employer of young people. In addition, the government's *New Growth Path* and associated economic development and job creation strategies prioritize a productive sector-led growth strategy, of which manufacturing is a critical component.

The metals/heavy machinery and food and beverage sub-sectors employ a significant proportion of employees in the broader manufacturing sector. In addition, these two sub-sectors are amongst the largest contributors to manufacturing production in the country. The metals/heavy machinery sub-sector is also expected to benefit in the short-term from SIP implementation, while the food and beverage manufacturing sub-sector is anticipated to benefit in the medium to long-term as targeted agro-processing infrastructure projects are completed.

4.1 Recruitment Demand in the Metals/Heavy Equipment Sub-sector

Between 1996 and 2011, the country saw overall positive growth in artisan employment, with much of the growth attributable to 'metals, heavy machinery and related trades' artisan occupations (merSETA and HSRC, 2013). Many employers interviewed through this study also indicated that they have recruitment demands for artisans, though they do not anticipate high growth rates of employment in these occupations. One employer in this sub-sector, however, indicated that they plan to train approximately 1,000 apprentices per year, some of which will become artisans, while others are positioned for supply chain and service representative roles within the firm.

What this study found, however, is that accessing artisan employment can be a challenge, even for young people who have completed an apprenticeship and passed a trade test. Many of the employers interviewed indicated that they need experienced artisans, meaning trade qualified combined with additional (often considerable) post-apprenticeship work experience. As indicated in **Box 3**, this dynamic may relate to the increased competencies that employers are looking for in artisans, particularly given the rapid technological advancements in the manufacturing sector, as well as the fact that many of these are replacement positions, rather than new positions.

A government official indicated that another contributor to the aforementioned dynamic is that the quality of artisans emerging from public TVET colleges does not respond to the competencies as outlined in the trade qualification. In 2011, for example, only 50 percent of individuals passed their artisan trade test (Mastshoba & Burroughs, 2013), which represents a slight improvement from the previous year where only 41 percent of individuals passed their trade test, many of which required more than one attempt (HSRC, 2012). Related to this concern, the interviewee commented that these graduates do not meet the needs of employers.

The research team also noted a tension related to artisan recruitment in the metals/heavy machinery sub-sector. From the perspective of one union official, many machine operators are performing job roles associated with artisans. The official suggested that employers are reluctant to pay for artisan skills though, which corroborates what the research team heard from some employers. The reluctance on the part of some employers to pay artisan wages may be due to a combination of factors, including slowed economic growth in the sector, as well as employers' demand for experienced artisans with a higher-level skill-set (therefore leading to lower wages for employees performing intermediate-level artisan tasks).

Despite these dynamics, employers did report increased recruitment needs more broadly for individuals with: 1) the skills to support SIP implementation; 2) knowledge in technologies associated with the growing green economy; and 3) skills specializations associated with increased mechanization of manufacturing operations, as well as the manufacturing of components and heavy machinery for the regional mining industry.

Box 3: Continuum of artisan skill requirements

All occupations—including artisan occupations—exist along a certainty continuum. Workmanship of certainty is on one end (i.e. routine work; simple tasks; supervised work), while design/innovation/risk is on the other end of the continuum (i.e. uncertainty; complex problem-solving; autonomous work).

Highly skilled artisans require both specialized disciplinary knowledge, as well as a multi-disciplinary knowledge base, so that they can operate in a variety of situations and solve complex problems. Life skills are also critical for highly skilled artisans, including strong communications and teamwork skills in multi-cultural environments, and therefore highly skilled artisans require a knowledge and skills range much broader than just technical skills.

Intermediate skilled artisans are crucial for the maintenance, servicing and repair of multi-technical systems. Though they deal with less risk and innovation as compared to highly-skilled artisans, their work is not routine, and routinized work and training will therefore not produce intermediate-level artisans needed for the future.

Source: Gamble, 2012, p. 15.

4.2 Recruitment Demand in the Food and Beverage Sub-sector

Food and beverage manufacturing stakeholders and employers interviewed through this study reported that they did not see substantial short-term employment growth in their sub-sector, although the limited recruitment demand is regarded as more stable in its growth trajectory than the metals/heavy machinery sub-sector.

Industry stakeholders and employers indicated that they are focused on improving operational efficiencies, due both to increased competition and rising labor costs, which in some cases is resulting in restructuring. Additional factors reported to be impacting employment prospects in the sub-sector include increased mechanization, cheaper robotics and consolidation of firms. These trends are also discussed in FoodBev SETA's Sector Skills Plan (2013), which notes that food manufacturers in particular are adopting new technologies in response to consumers' increased food safety priorities, which has resulted in the increasing use of machinery and equipment over labor. The report also notes the high degree of consolidation in the sector, with 372 large firms—just 6 percent of the total number of firms registered in the sector—employing 85 percent of all food and beverage manufacturing workers.

Despite the above dynamics, employers and stakeholders noted that the sub-sector has an aging workforce, and so there will be continued attrition and the need to train and recruit new entrants for the positions. In fact, more than 60 percent of employees in the sub-sector are above age 35, which does not reflect South Africa's more youthful population demographics (FoodBev SETA, 2013). Government and union stakeholders also indicated that agro-processing more broadly holds significant potential for economic and employment growth, which reflects the government's SIP priorities and planned investments.

Employers noted consumers' preferences for healthier foods might result in the growth of non-artisan positions, such as food technologists. More broadly, the food and beverage manufacturing sub-sector has less overall demand for artisans, with FoodBev SETA's 2011-2015 Sector Skills Plan projecting 50,000 hires in the industry during this five year period, 19

percent of which are machine operators, 61 percent are elementary occupations, and only 7 percent are artisans, which suggests that this sub-sector is easier for youth with basic matric qualifications to enter, as compared to the metals/heavy machinery sub-sector (FoodBev SETA, 2013). Employers in this study, however, noted that a high proportion of their employees are temporary and contract workers—due to seasonal availability of products—which often results in less job security for young people in the sector.

4.3 Recruitment Models & Career Pathways

Most employers within the metal /heavy machinery and food and beverage manufacturing sub-sectors require applicants to have a matric certificate as a minimum pre-requisite, with some companies looking for matric plus a technical theory qualification (i.e. through a TVET college or technical high school). For this reason, a few employers reported that they recruit candidates directly from technical high schools. Other employers reported recruiting graduates from the TVET college system for apprenticeship opportunities, and particularly students with N3 qualifications, and to a lesser extent NC(V) qualifications (see **Box 4** for additional information on TVET college qualifications). As one employer stated: “We went to technical high schools, TVETs and the like as we want people who already know some of the theory—and that is a basis to start from.” In addition, many of the employers have partnerships with private sector training providers that deliver learnerships and part qualifications to aspiring sector entrants, and employers recruit young graduates from these programs, particularly for apprenticeships.

Young apprentices interviewed through this study indicated that they had N3 to N6 qualifications. One young woman said that she also had a NC(V) Level 4 qualification, but had found that “companies did not want to take us,” and so she had therefore gone back to complete a N-qualification.

In general, employers indicated that they are applying stricter selection criteria due to the volume of applicants and therefore require more stringent screening processes. They also cite their more refined criteria for jobs, which is linked to the rapid technological advancements in the manufacturing sector and the more specialized skills required. In addition, a number of employers indicated that it is not only the volume of applicants that is a challenge, but also identifying which applicants have a real aptitude and commitment to technical work in order to ensure “they have a real interest in the profession.” This also relates to what many of the employers perceive as a commitment gap amongst youth, which is explored in more detail in the next section of this report.

Employers classify entry-level jobs in the target sub-sectors as elementary occupations, such as operator assistants and general laborers. Most of the employers interviewed indicated that they prefer to promote individuals from this entry-level pool into semi-skilled machine operator positions, as opposed to recruiting machine operators from the open labor market (see **Box 5** for one example). A limited number of machine operators are selected for apprenticeship training within firms. When employers do recruit machine operators from the open labor market, some firms—and particularly those in the metals/heavy machinery sub-sector—reported that they recruit machine operators without prior technical training. One training provider confirmed this and indicated that, in their experience, employers were looking for individuals with a ‘bare minimum’ of skills in a trade, and were prepared to train and advance new recruits if they showed a strong learning aptitude and commitment to the sector.

When employers recruit for artisans from the open labor market, they increasingly look for trade certified artisans with additional work experience beyond their apprenticeships. Apprentices who pass their trade test, however, also have high employment rates within the South African context. A 2012 survey, for example, found that 76 percent of apprenticeship participants who completed their qualification accessed employment (Kruss, et al, 2012). Based on the continuum of artisan skills described in **Box 3**, newly qualified artisans are likely considered intermediate-skilled artisans, while artisans with additional work experience are considered high-skilled.

Box 4: Qualifications in South Africa's TVET college system

TVET colleges currently offer two primary categories of qualifications that prepare young people for apprenticeships and employment in the manufacturing sector, as well a third category that will be introduced in 2016.

1. National Technical Education Certificate (NATED or 'N' courses)

- **History:** The current National Certificate qualifications—more commonly called NATED or 'N' courses—were promulgated in the policy *Formal technical instructional programmes in the RSA, Report 191–2001/08*.
- **Structure:** 'N' courses are offered at levels 1 to 6, and are focused on occupational theory. Each level of the engineering 'N' course is one trimester long (14 weeks). The engineering NATED courses were designed to support individuals already enrolled in apprenticeship programs by providing complementary training in theory, and they were also designed to provide training alternatives to the secondary schooling pathway. For this reason, the 'N' Levels 1–3 are regarded as being parallel to Grades 10 to 12.
- **Current Status:** The 'N' courses were planned for phase-out as the NC(V) courses were introduced at TVET colleges in 2007, and indeed nearly all were eliminated. However for a range of reasons a number of these programs are still being offered, including 'N' Engineering Levels 1 to 3, with its phase-out deferred indefinitely by government in 2010, largely due to continued industry demand.
- **Artisan Preparation:** Students who complete up to 'N' Level 3 require a two to three-year apprenticeship/work experience with an employer before they can write an artisan trade test.

2. National Certificate (Vocational) [NC(V)]

- **History:** The NC(V) qualifications were introduced by DHET at TVET colleges in 2007.
- **Structure:** The NC(V) qualifications are structured as a set of three national vocational qualifications aligned to the National Qualification Framework (NQF) levels 2 to 4 (i.e. Grades 10–12). The three single-year qualifications—NC(V) Level 2 to NC(V) Level 4—though each independent, have a cumulative intent. NC(V) learners take a total of seven subjects divided into two categories: fundamentals and the vocational, which includes a 60 percent practical component delivered through workshops on TVET college campuses.
- **Current Status:** While the NC(V) was originally meant to replace the 'N' courses, this has not occurred. Of the 500,000 students enrolled in public TVET colleges in 2012, only 28 percent were enrolled in the NC(V).
- **Artisan Preparation:** In theory, a student who completes up to NC(V) Level 4 should only require a short internship with an employer prior to writing an artisan trade test.

3. Quality Council for Trades & Occupations (QCTO)-registered Qualifications

- **History:** The QCTO was established in 2010 to oversee the design, implementation, assessment and certification of occupational qualifications. The QCTO has been tasked to work with employers to develop new occupational unit standards and qualifications, including for training programs relevant to artisan occupations.
- **Structure:** QCTO-registered qualifications are aligned to the NQF, though the curriculum is not modular like the NC(V). In addition, while NC(V) courses are fairly broad (i.e. 'Engineering & Related Design'), the QCTO-registered qualifications are occupation-specific (i.e. Boilermaker). The duration and composition of artisan-related, QCTO-registered qualifications are generally three to four-years in duration, and include trade theory, practical training, and a workplace experience component that comprises about 45% of each qualification.
- **Current Status:** As of March 2015, there were 27 new occupational qualifications that have been registered with the QCTO, and an additional 13 that are recommended for registration. DHET plans to begin piloting artisan-related, QCTO-registered qualifications in public TVET colleges in 2016.
- **Artisan Preparation:** Individuals who successfully complete trade-specific QCTO-registered qualifications will be able to write an artisan trade test.

Sources: Matshoba & Burroughs, 2013; DHET, 2014.

4.4 Artisan & Machine Operator Priorities & Scarce Skills

Employers in the metals/heavy machinery sub-sector indicated an increased need for skilled artisans, with millwrights, instrument mechanics, double coded welders, and tool and die makers noted across several employers. Employers in this sub-sector did not report challenges recruiting machine operators, likely because most recruit directly from their pool of employees in elementary occupations.

The food and beverage manufacturing sub-sector has a different occupational composition than the metals/heavy machinery sub-sector, with food and beverage employers having a much higher proportion of elementary employees and machine operators. Food and beverage employers interviewed did report, however, that increased mechanization within their industry could lead to an increased demand for instrumentation artisans. In terms of current artisan demand, however, food and beverage employers reported demand for millwrights most frequently. In terms of machine operators, employers expressed a specific need for packing and process machine operators.

The SETAs, through the development of their Sector Skills Plans, also identify scarce skills in their sectors through surveys with employers. **Table 4** indicates which scarce skill occupations are common to the metals/heavy machinery and food and beverage manufacturing sub-sectors, as well as those scarce skills required for SIP implementation; each occupation listed is considered a scarce skill in at least two of these three domains (FoodBev SETA, 2013; merSETA, 2013; EDD & DHET, 2014).

Box 5: One firm’s approach to selecting and training new machine operators

One food and beverage company has adopted an innovative approach to training and selecting new machine operators by leveraging their heavy reliance on seasonal staff. The firm has 640 staff, over half of which are seasonal employees. The company provides Packing Operator Learnership opportunities to 45 seasonal staff per annum. From this pool of seasonal learners, the company absorbs approximately 10 percent as permanent machine operators, while the remainder stay in the seasonal pool of employees.

TABLE 4: COMMON SCARCE SKILLS FROM SETA SECTOR SKILLS PLANS—METALS, FOODBEV & SIPS

Artisans (skilled)	Machine Operator (semi-skilled)
Air-conditioning and refrigeration mechanic	Crane, hoist and lift operators
Boilermaker	Professional driver
Electrician	
Fitter and turner	
Heavy equipment mechanic	
Millwright	
Rigger	
Sheet metal worker	
Welder	

4.5 Geographic Priorities

The majority of companies in this study's targeted manufacturing sub-sectors are located in Gauteng Province, with most of the remaining firms based in the Western Cape and KwaZulu-Natal Provinces (merSETA, 2013; FoodBev SETA, 2013). In the food and beverage manufacturing sub-sectors, for example, 49 percent of the workforce is based in Gauteng Province, 28 percent in Western Cape, and 8 percent in KwaZulu-Natal, with the remaining 15 percent divided amongst the country's six other provinces.

The only specific geographic areas in which stakeholders and employers indicated that there could be significant future recruitment demands are in the country's Special Economic Zones (SEZs), as well those projects linked to the SIPs.

5 WHAT ARE YOUNG PEOPLE'S SKILLS & KNOWLEDGE GAPS?

What are the critical skills gaps that prevent young women and men from accessing employment opportunities in the target manufacturing sub-sectors?

5.1 Technical Skills

Employers indicated that, in general, they find that youth entrants know occupational theory but encounter difficulty applying this knowledge in practice. There is a dichotomy in the employer responses on this issue though. When recruiting new apprentices, many employers reported a preference for N2 and N3 graduates from TVET colleges (the 'N' courses only teach theory), as they prefer to provide young people with practical experience in their own firms. New entrants from 'N' courses therefore have little experience putting their knowledge into practice. The NC(V) courses include a practical element, though employers reported greater reluctance recruiting these graduates, suggesting they are not confident in the theoretical and/or practical training provided to NC(V) learners.

This challenge also arose in the discussions with young people on apprenticeships, most of whom had 'N' qualifications from TVET colleges. These youth reported that the major skills deficits they faced when entering the workplace were related to having little practical experience. One young woman indicated, for example, that *"at [the TVET] college, you would see for example what a bearing looks like from a text book, but when I came here I could not even recognize it or point it out."* Others spoke of unfamiliarity with certain types of machinery which they were expected to use.

This challenge may also be compounded by the difficulty young entrants encounter in rapidly learning how to translate theory into practice. One employer noted, for example, that a lot of the young entrants seem to have *"short term memory problems. They learn something and in a weeks' time you have to show them again—knowledge retention is for here and now."* Despite these challenges, employers also noted that many young entrants show an eagerness to learn. Improving young people's study skills and methods, both for theoretical and practical training components, may help to partially address this problem.

Employers noted that specific artisan skills are also very scarce, which they indicated was linked to the high costs of certain types of artisan training, as well the lack of opportunities for youth—and particularly TVET college students—to attain relevant work experience that will allow them to write an artisan trade test.

5.2 Numeracy & Literacy

Employers reported that numeracy and literacy levels are also generally low amongst young applicants, which presents a particular challenge for recruiting apprentices (where math and literacy skills are crucial), and also prevents youth employed in semi-skilled occupations from accessing higher-skilled career pathways in the sector. As one stakeholder pointed out, *"you look at someone who has a matric certificate and they can barely read or write. We have to sort out the schooling system."* The reference to the schooling system is apt, given that South African students rank in the bottom range of the international spectrum on mathematical aptitude (Field, et al, 2014).

5.3 Life Skills

IYF defines life skills as: *the abilities for adaptive and positive behaviors that enable individuals to deal effectively with the demands and challenges of work and everyday life.* In this respect, life skills encompass the ‘soft’ knowledge, skills, attitudes and behaviors that enable young people to lead healthier, more productive and engaged lives.

Against this definition, employers reported that new labor market entrants have a range of life skills gaps, including:

- Lack of work ethic
- Poor understanding of the world of work
- Lack of discipline
- Lack of commitment to obligations, despite being aware of their rights
- Low levels of financial literacy
- Substance abuse issues

For higher-skilled positions, such as artisans, employers reported that additional life skills become crucial, such as teamwork and problem solving. One employer noted, for example, that in the near future they would need artisans with enhanced life skills—*“people who can join the dots and problem solve”*—particularly as artisans are beginning to engage with customers more directly. This reinforces the artisan skill set continuum developed by Gamble (2012) and summarized in **Box 3**, in which life skills such as teamwork, problem-solving skills and communications are critical for high-skilled artisans that have to solve complex technical challenges and deal with higher levels of uncertainty in their positions.

These findings suggest that youth would benefit from enhanced foundational life and work readiness skills, such as responsibility, effective study skills, workplace protocol, financial literacy, and knowledge of more healthy lifestyles. For those young people entering more skilled occupations, including artisan roles, they would especially benefit from additional life skills competencies, such as problem solving, teamwork, creative thinking, decision making, and effective speaking and communication. These findings were also highlighted in a merSETA-commissioned survey, which found that employers listed the following life skills as critical for work in the industry: *“a positive attitude; solid work ethics; thinking skills related to math and reading; problem-solving skills; and interpersonal and communication skills”* (merSETA, 2010, p. 36).

Opportunities for young people to acquire these skills in both the public and private TVET training system are currently limited, given that such skills are not explicitly incorporated into apprenticeship training programs, nor are they included in the ‘N’ courses at TVET colleges. A review of the new occupational qualifications registered with the QCTO indicates that life skills are also missing from these new qualifications. Life skills are, however, integrated into NC(V) courses through the compulsory Life Orientation course, though there is a need to ensure higher quality delivery of this curriculum to participating learners, particularly through supporting Life Orientation teachers to use more learner-centered, participatory teaching approaches (Matshoba & Ruth, 2014).

5.4 Commitment Deficit

One of the most complex challenges that employers and other stakeholders report is the lack of commitment that young people have to their trades and occupations. Employers and other stakeholders participating in this study regularly reported that young entrants lack commitment, and in general do not actually want to work as artisans. For example, employers commented that *“in the old days, the master artisan was committed to his work”* and *“today you do not find that same level of commitment.”* One employer stated that many apprentices do not want to become artisans, *“it is viewed as a shortcut to a comfortable life... the passion and love for the job not there... and that is why the recruitment process is so tight.”*

Additional employers voiced the same concern, with one suggesting that “young people want to be artisans for a minute and then move into the office”. Another employer spoke of apprentices leaving in the second year of their program, after significant training investment from both the employer and the young person themselves. Some union representatives shared these views with one stating that, “generally young people are not keen to go into hard labor and they don’t want to get dirty... they want to go straight to an office and into soft things.”

The young people interviewed through this study, however, were generally positive about their choice in taking a technical route. One young woman indicated that “I chose engineering because it was challenge for me and I liked that; and that is why I did human resources but then moved to engineering”. The young people spoke of their ‘passion’ for the areas that they were studying (i.e. welding and electrician fields) and many confidently described their favorite parts of their work and training in terms of the technical skills acquired. In one group of young apprentices, there was, however almost unanimous agreement that they would all ultimately like to become engineers. This may allude to employers’ perceptions that most young apprentices are not ultimately interested in artisan occupations, and are also drawn to the higher prestige and pay levels associated with engineers, though one cannot fault young people for seeking higher-skilled fields.

Changing young people’s perceptions and increasing commitment to their trades will likely need to be a long-term, multi-faceted effort focused on strengthening career guidance services; improving the perceived and actual quality of the TVET college system more broadly; and enhancing young people’s readiness and realistic expectations for the world of work. While these challenges are not wholly unique to South Africa, the legacy of apartheid has played a major role in contributing to society’s negative perceptions of artisan training and employment, a dynamic that is discussed further in **Box 6**.

With specific regards to strengthening career guidance services, this is a critical immediate need, with the Education, Training and Development Practices SETA identifying weak career guidance as one of the primary reasons for high student drop-out rates in TVET colleges (ETDP SETA, 2012). There are several efforts underway by DHET, ETDP SETA and the South African Qualification Authority (SAQA) to strengthen career guidance services for all students at TVET colleges. This study and others, however, suggest that there is a specific need to create clear career guidance frameworks and services for students seeking to enter vocational and technical training and employment.⁸ Such services must help students make sense of the complicated set of technical and vocational training and employment pathways, and support students to select training routes that are best suited to their needs and their respective local labor markets. These services should also help young people to decide if these pathways are aligned with their personal and professional goals, ideally prior to enrollment.

⁸ See, for example, Field, et al 2014, p. 117–122.

Box 6: Brief history of artisan training and development in South Africa

South Africa's technical education prior to 1994 was structured on, and contributed towards, an unjust and racially divided labor market. Beginning in the late 19th century, training for black Africans was relegated to manual labor roles. A confluence of factors in the early 1900's—including increased white poverty as a result of the Anglo-Boer War, and industrialization and white urbanization—resulted in the *Mines and Work Act of 1911*, in which technical education and artisan certification was formally reserved for whites (Wildschut and Ngazimbi, 2012). During the 1930s and 1940s, the government introduced more formal vocational training structures, with the continued aim to alleviate white poverty.

The apartheid government further formalized the race-based technical and vocational education system, including through the *Bantu Education Act of 1953* that prohibited certification for acquired skills for any non-white person (Mbatha, et al, 2012). In addition, the *Bantu Building Workers Act 27 of 1951* stipulated that training of black people as artisans was only allowed in the building trades, while the *Group Areas Act of 41 of 1950* made it a criminal offense for these limited number of black artisans to undertake skilled work in urban areas that were not designated for black people. The result from this discrimination was stark: between 1969 and 1979, an average of 560 black African apprentices were trained per year, as compared to 37,600 white apprentices trained per year (Lundell & Kimmie, 1992).

Rapid economic growth in the 1960s and 1970s, particularly in South Africa's manufacturing sector, resulted in employers pressurizing government to provide national education for black Africans, in response to growing demand for skilled artisanal labor (Mbatha, et al, 2012). De facto desegregation of the workplace began in the 1970s, followed by the *Manpower Training Act 86 of 1981* that significantly reformed the artisan training system, including by providing black workers with the opportunity to participate in training and apprenticeships, though still within the context of a socio-economic system structured around the injustices of apartheid. Formal employment rates in South Africa began to decline rapidly in the 1980s, however, which limited apprenticeship training opportunities and artisan employment, a situation that contributed to rapid decline of the artisan training system and trade test pass rates more broadly (Mbatha, et al, 2012).

Following the end of apartheid in 1994, the South African government launched a range of new policies, frameworks and institutions to enhance the quality and inclusivity of South Africa's technical and vocational training system. The government has achieved some major success in this regard, with the proportion of black African apprentices rising from 34 percent in 2005 to 57 percent in 2012 (merSETA and HSRC, 2013). Nonetheless, the 2012 rate is still below the percentage of economically active individuals in the country who are black African (76 percent), indicating the need for continued progress. The trade test pass rates for black Africans also continue to lag their white counterparts: 36 percent versus 52 percent, respectively. In addition, the TVET college system is still often regarded not as an educational institution of choice, but rather one of circumstances, such as for students with no matric or poor matric results (Field, et al, 2014).

Despite significant progress made, technical and vocational training and employment in South Africa continues to carry the legacy of over a century's worth of discrimination and class divides (Allais, 2003). A system that was explicitly designed to reduce white poverty, and which barred black Africans from nearly all artisan training and employment, will inevitably result in lower perceived status—including amongst youth—which will need to be continually addressed through enhanced career guidance services and initiatives that more effectively prepare and bridge youth from historically disadvantaged backgrounds into quality training and career pathways in the sector.

6 WHAT ARE EFFECTIVE TRAINING MODELS & APPROACHES?

What are effective training models and approaches for addressing identified knowledge and skills gaps, and do training providers require support to enhance their existing programs? What incentives are available for South African employers and training providers to implement training?

6.1 Employer's Preferred Training Models

With regards to machine operators, as previously noted in this report, employers tend to promote promising employees from elementary occupations, and provide training to these individuals for semi-skilled machine operator positions. The training provided is largely in the form of a learnership, part qualification or short unaccredited training program related to the specifics of the particular piece of equipment required in the respective. Only a very limited number of machine operators ultimately access artisan training pathways. When employers provide machine operator training, they reported that they generally prefer to train young people internally, in order to groom new entrants in their own company's systems, values and approaches. Employers noted that there are well-established manufacturing operator learnerships in these sectors.

In terms of artisan development pathways, a government stakeholder noted that candidates who have completed practical training within the workplace—including through employers' own internal training academies—generally have a higher degree of holistic competency, as compared to youth who have completed qualifications at public TVET colleges, which is contributing to employers' continued lack of confidence in TVET college graduates. This particularly relates to youth who have completed NC(V) qualifications, since graduates from the 'N' courses that access apprenticeships receive multi-year practical training with an employer. For this reason, most of the employers interviewed through study prefer 'N' graduates over NC(V) graduates.

Irrespective of the TVET college qualification though, some employers reported a preference to only recruit youth from private training providers with whom they have long-standing partnerships. These training providers are all generally SETA-accredited and offer trade-specific learnerships, from which young people are prepared to write trade tests. Any learner, however, must have 12 months minimum workplace-based training prior to writing a trade test.

The complexity of these recruitment and training pathways relates to the four approved routes for artisan development in South Africa, which are described in **Box 7**. Despite employers' often stated preferences for graduates from private training providers, there is also evidence that companies are starting to engage more robustly with TVET colleges, which is partly linked to government's training incentives described later in this section. Productive and positive partnerships with TVET colleges may therefore begin to shift employers' preferences.

6.2 Training Challenges & Areas for Further Support

6.2.1 Challenges with Training Providers

Employers consistently mentioned challenges in partnering with public TVET colleges, though they are aware this is a strategic priority in government policy. As noted elsewhere in this report, employers' have limited confidence in graduates from the TVET college system, with many indicating that there needs to be enhanced processes where businesses and TVET colleges work together more closely to ensure quality of training provision. Related, a union representative argued:

“Government wants to support public providers, which is fine, but while they have the physical capacity in terms of space and are cheaper they don’t have the necessary expertise to produce quality and conversely, private providers have the expertise but limited physical space to absorb large numbers of learners.”

Some employers and private providers, however, have had positive experiences engaging with the TVET colleges, which may reflect both increased government investment in the TVET college system, as well as innovative partnerships underway in the system (described in more detail in this section). One employer, for example, was extremely pleased with the quality of the NC(V) graduate cohort they recently recruited, and a number of private training providers indicated that they had positive experiences working with TVET colleges through initiatives funded by the Unemployment Insurance Fund (UIF). These examples, however, do not reflect the views of the majority of respondents, which indicates that further progress is needed. The government is making significant efforts, however, to improve TVET training quality and relevance, often in close partnership with industry. Some especially prominent and innovative initiatives are described later in this section.

Box 7: Four pathways to becoming an artisan in South Africa

A learner seeking to become an artisan may apply to take a trade test after completing theoretical and practical training via one of four approved routes (Mbatha, et al, 2014, p. 14; merSETA & HSRC, 2013, p. 4):

1. **Apprenticeship:** N2 qualification, or matric with mathematics and science, plus completion of a two to three-year contract with an employer that generally includes structured workshop and on-the-job training.
2. **Learnership:** Achievement of NQF levels 2, 3 and 4 (each a one-year qualification) through a SETA-accredited private training provider or TVET college. Learnerships include theory, practice and structure workplace or workshop-based training. Artisan-related learnerships will soon be replaced, however, by QCTO-registered occupational qualifications (see Box 4 for more details).
3. **NC(V) with structured workplace learning:** Completion of NC(V) levels 2-4, with a structured short internship in the workplace. Candidates may also substitute workplace learning with a part qualification offered through a SETA-accredited private training provider or TVET college.
4. **Recognition of Prior Learning:** At least four years of employer-signed work experience, with exposure to tasks and responsibilities related to those of the artisan.

The dominant pathway for artisan development in South Africa is the apprenticeship route, with approximately 55 percent of new qualified artisans between 2006 and 2009 going through this route (Elliot, 2009). The main constraint across the above pathways is the availability of workplace training opportunities, with an estimated 65 percent of TVET college students unable to find workplace experience that will allow them to write a trade test (NPC, 2011). Many of these students also do not have sufficient funding to access equivalent workshop-based training through private training providers.

6.2.2 Challenges with Training Content (Life Skills & Numeracy/Literacy)

In terms of challenges related to training content, some training providers indicated they would like assistance incorporating high-quality life skills content into artisan training programs. Many employers referred to this area in the context of work readiness skills, including the need to further develop learners’ soft skills, knowledge and attitudes that will increase their retention in apprenticeship and learnership training, and which will support these learners to

succeed in the workplace. While a few private training providers have already moved forward with incorporating life skills into their programs, this is not yet the norm, partly due to uncertainty on how to accredit life skills courses, as well as uncertainty about the new QCTO occupational qualifications. The research also found that employers and training providers are unsure as to what are the most effective models are for integrating life skills into technical and vocational training courses.

As noted earlier in this report, employers regularly reported numeracy and literacy gaps as a significant challenge amongst new entrants into their sector. Most employers and industry stakeholders, however, did not regard this challenge as their sole responsibility to remedy, and indicated that the responsibility should primarily reside with South Africa's public schooling and post-schooling system. There is a need, therefore, to address these gaps within the schooling system and to ensure assessments are valid, so that employers have increased confidence in TVET college learners and graduates, and do not become responsible for delivering remedial numeracy and literacy training.

6.2.3 Funding Constraints

Employers also mentioned constraints in funding for training programs, with some company training providers indicating that they would take on more learners and apprentices—including beyond their own recruitment needs—if they had more funding. In addition, employers noted that the costs of training certain types of artisans, particularly diesel mechanics and boilermakers, are very high, which is a disincentive to providing this training (both are scarce skills of relevance to the sub-sectors covered in this study).

6.3 Policy & Financial Incentives Influencing Training

The following are the key incentives influencing training in the target sub-sectors:

- **Broad-Based Black Economic Empowerment (B-BBEE):** Large employers indicated that compliance with B-BBEE is now a standard part of doing business. As part of compliance, employers indicated that the type of training they deliver is informed by the B-BBEE Skills Development Scorecard, and more broadly that B-BBEE has resulted in their increased delivery of training to employed and unemployed youth. The scorecard incentivizes specific types of training, particularly accredited training (i.e. learnerships and apprenticeships), as well as internships, the latter of which employers indicated they would like to increasingly use as recruitment tools. The internships are particularly relevant for NC(V) Level 4 graduates, as they only require a short internship within the workplace prior to writing their trade test.
- **Employment Tax Incentive (ETI):** While not mentioned often, one training provider indicated that their partner employers are increasingly utilizing the ETI. Another employer, however, indicated that the ETI is not very relevant for apprentices and artisans, since apprentice salaries typically start at R4500 per month, and by the second year they earn above the qualifying ETI salary ceiling of R6000 per month. The ETI is likely only relevant then for machine operator positions, though no employers mentioned it in this context, which may indicate that further marketing of the ETI is necessary in the manufacturing sector, and particularly the food and beverage sub-sector which has a large proportion of machine operators in its workforce.
- **SETA Grants:** SETA grants are an important funding mechanism for training programs, particularly through their funding of training programs that are also prioritized in the B-BBEE Skills Development Scorecard (i.e. learnerships, apprenticeships and internships). The FoodBev SETA, for example, has targeted the annual funding of 800 learnerships for unemployed individuals, 100 apprenticeships, and 500 internships and workplace experience opportunities (FoodBev SETA, 2013). In addition, merSETA has established itself as a lead supporter of artisan

development in the country, with plans to support the development of 20,000 new artisans by 2015/16 (merSETA, 2013). Typically learnerships and apprenticeships contain a mixture of both SETA funding and employer investments. Employers indicated that they access SETA grants consistently, and in some cases reported that SETA grants have enabled them to train beyond their immediate company needs.


- **TVET College & Workplace Grants:** DHET's National Artisan Development (NAD) division is seeking to develop further incentives to encourage training at scale, including through developing a funding formula to enable seamless funding from TVET colleges through to workplace, which would involve getting employers to commit upfront to providing workplace-based training opportunities to new TVET college enrollees, through which they would access funding support from DHET. This incentive would be in addition to the standard trade-related grant structure that DHET already has in place.

6.4 Innovative Training Models & Partnerships

For this study, IYF sought to identify innovative public-private partnerships in South Africa that are enhancing technical and vocational training, and particularly collaborations between DHET, SETAs, TVET colleges and industry. This is in response to the government's strategic priority of enhancing the quality and labor market relevance of training at TVET colleges, both to increase the number of qualified artisans in the country and to reduce youth unemployment.

Using the above criteria, this study identified the following innovative training initiatives currently underway:

- **Accelerated Apprenticeship Training Program (AATP):** The AATP—funded through merSETA and the National Skills Fund—targets N3, N4 and NC(V) Level 4 graduates, and has higher entry qualification requirements than typical apprenticeships. The program fast-tracks artisan development for participants over a two to three-year period, using a workplace simulation environment within the TVET colleges, followed by a short work exposure, which ends in a trade test. As of 2013, over 4200 learners had registered in the program, of which over 2400 had passed their trade test (merSETA, 2013).
- **Dual System Apprenticeship Pilot (DSAP):** The DSAP—supported by a DHET task team inclusive of merSETA—is based on the German and Swiss model of apprenticeship training and is modeled so that NC(V) learners spend a portion of each week in the classroom at their respective TVET colleges, and the remainder of the week at an employer, where they put their theory into practice. This form of integrated training results in a higher level of problem-solving skills. This pilot project will run from July 2013 to June 2016.
- **Generic Trade Preparation Program (GTPP):** DHET's National Artisan Development (NAD) division—in partnership with a team of employers—is piloting the development and implementation of a program to more effectively prepare TVET college learners for apprenticeships and employment, and to improve trade test pass rates. The GTPP course includes N1 and N2 qualifications—which are six months in duration in total—and adds an additional six months of supplementary math, science, literacy, communication, ICT and life skills training. NAD and its partner employers piloted the program in partnership with select TVET colleges in 2014, and plan to extend the pilot to additional colleges in 2015 based on its initial success. This program is particularly significant, given that it seeks to address many of the competency and life skills gaps highlighted by employers in this study. The program is also being positioned to bridge TVET college learners into the new QCTO-registered qualifications, which DHET will begin to introduce at TVET colleges in 2016 (see **Box 4** for more details).
- **Intsimbi National Tooling Initiative (NTI):** The NTI—a partnership between the Department of Trade and Industry (DTI) and the Toolmaking Association of South Africa and with funding from the National Skills



Fund—aims to rehabilitate South Africa’s Tool, Die and Mould Making (TDM) industry. A critical part of the NTI is its Skills Development Program, which has worked to develop new TDM curricula for TVET colleges, in partnership with DHET and the QCTO.

- **The Swiss South African Cooperation Initiative (SSACI):** SSACI is a public-private partnership between the Swiss Agency for Cooperation and Development (SDC) and Swiss (and other) companies trading in South Africa. In partnership with DHET, SSACI supports both the Accelerated Apprenticeship Training Program and the Dual System Apprenticeship Pilot, and is also involved in strengthening the quality of training at TVET colleges, particularly through increasing workplace-based training opportunities for both students and college staff.

7 WHAT BARRIERS ARE PREVENTING YOUNG WOMEN FROM ACCESSING OPPORTUNITIES?

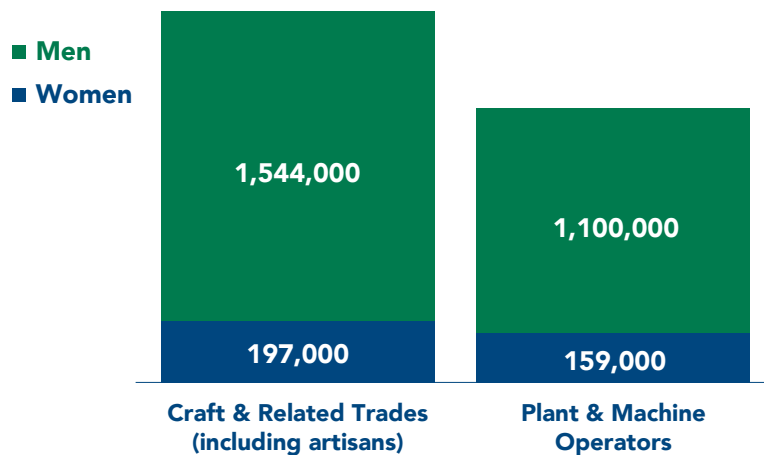
What barriers, in particular, are preventing more young women from accessing and succeeding in employment in the targeted sub-sectors and occupations? What approaches might help to reduce these barriers?

7.1 Labor Market Context

As noted earlier in this report, young women are especially vulnerable to unemployment in South Africa, with 40 percent of young women unemployed in 2014, compared to 33 percent of young men (Statistics SA, 2004a). The South African government has made a policy commitment to promoting gender equality in skills development, with the NSDS III explicitly stipulating that all skills development initiatives must promote gender equality in access, training and career progression. This carries through to the B-BBEE Skills Development scorecard, which provides enhanced recognition for black females participating in company-funded training programs.

These policies are especially relevant for the manufacturing sector, where women are significantly underrepresented in the workforce. In the manufacturing sector overall, there are 1.75 million employees, only 33 percent of whom are women (Statistics SA, 2014b). In the metal/heavy machinery sub-sector, only 20 percent of the workforce is comprised of women, while in the food and beverage manufacturing sub-sector, 38 percent of the workforce is comprised of women (merSETA, 2013; FoodBev SETA, 2013). Given that the manufacturing sector is the fourth largest employer of youth in the country, it has the opportunity to play a much larger role in reducing the unemployment rate of young women.

FIGURE 2: OCCUPATIONAL WORKFORCE COMPOSITION
(number of employees by gender)



When examining occupational categories, the underrepresentation of women in technical and vocational employment is even starker. Of the 1.74 million individuals employed in craft and related trade occupations in South Africa—which includes qualified artisans—only 11 percent are women (Statistics SA, 2014b). Amongst merSETA registered firms, the rate is even lower: 7 percent (merSETA, 2013). Amongst FoodBev SETA registered firms, 24 percent of employees in these artisan occupations are women, which while still low, is more than double the rate across all industries nationally (FoodBev SETA, 2013).

Of the 1.26 million individuals employed in plant and machine operator occupations in South Africa, only 13 percent are women. Amongst merSETA and FoodBev SETA registered firms, the rates are 20 percent and 21 percent respectively. Clearly there is significant room for improvement, both in terms of the proportion of women working in the manufacturing sector, as well as in artisan and machine operator roles more specifically.

7.2 Views from Employers & Industry Stakeholders

The overrepresentation of men in the industry was clear during the key informant interviews for this assessment. Of the 26 employer, industry association and union representatives interviewed, only nine were women. This dynamic was also evident in many employers' responses to questions related to the demand for women in artisan and machine operator positions. Most indicated that there was no strong demand for young women, with two employers specifically indicating that they prefer not to hire women as artisans because of past negative experiences, company culture, and issues around the perceived physical ability of women to perform adequately in these positions.

Related to company culture and practice specifically, some employers noted that their male employees are not receptive to working alongside female artisans. The suggestion was that this is partly related to the male-dominated nature of these workplaces, but also due to their perception that female employees expect the men to “look after them and do the heavy work for them”, which creates tensions. When looking at workforce data, the outcomes from these biases were evident. One company's workforce, for example, was comprised of 22 percent women, none of whom were apprentices or artisans. In another large company (i.e. more than 200 employees), there were no female artisans employed.

With regards to gender differences in physical ability—which was a common explanation provided to explain the low proportion of female employees in the manufacturing sector—this study found that physical ability differences alone are not sufficient to explain such a highly gendered sectoral workforce.

A recent international meta-analysis on tests of physical ability relating to employment found that employers, when measuring physical ability, tend to measure for muscular strength, cardiovascular endurance and movement quality (Courtright, et al, 2013). Men, on average, were found to score higher than women on tests of muscular strength and cardiovascular endurance, though there were no differences in test of movement quality. Pre-employment physical training helped to narrow the differences between women and men, though not completely. Women, however, typically score higher than men on tests of reaction time, dexterity and visual acuity, though these tests are not typically used in physical ability tests for employment. The meta-analysis concluded that physical ability tests are often necessary for specific occupations, but suggest that tests of muscular strength and cardiovascular endurance are sometimes overused and not well-matched to certain jobs, and that physical training can narrow the differences that do exist.

The above meta-evaluation on gender differences in physical ability is relevant, both to recognize that for certain physically demanding occupations, employers have valid reasons for employing physical ability tests, while also recognizing that training can help to reduce differences in results between women and men. In addition, many artisan and machine operator occupations do not require a high level of muscular strength and endurance, and it is therefore important that employers ensure physical ability tests are well-matched to specific jobs, in order to enhance gender equitable recruitment practices. Employers in this study indicated that physical strength and endurance are less necessary for electrician, millwright, instrument mechanic, welder and boilermaker trades, all of which were also identified as scarce skill artisan occupations in high demand by employers. Employers also indicated that women often performed better in these occupations than men because they are more detail-oriented, which may allude to findings from Ployhart and Holtz (2008) that women typically score higher than men on tests of dexterity and visual acuity. Food and beverage employers also reported that both women and men are just as physically able to work in machine operator roles.

These findings indicate that gender differences in physical ability should not preclude the equitable participation of women in artisan and machine operator training and employment. Initiatives with a gender equity focus should therefore not only focus on addressing physical ability requirements when relevant, but also work with employers to create more gender-inclusive workplace cultures and address recruitment biases (including ensuring pre-employment tests are well matched to the requirements of the job), the latter of which are likely greater barriers to women seeking to enter the sector than gender differences in physical ability.

7.3 Views from Young Women & Men

In the youth focus group discussions, which were separated by young women and young men, it was found that all are very positive about the role of women in technical trades, though some young men suggested that women are unable to perform some tasks in the heavy machinery trades. On the whole, however, the young men showed a general acceptance of women in both technical training and employment, which differed to the views of some interviewed employers.

Of particular interest, many young women in the focus groups indicated that they did not face any additional barriers in the workplace as a result of their gender, and that their employers ‘treated them the same’ as young men. A few women, however, suggested that employers do not think they are as physically strong as their male counterparts. It is not clear, however, if employers’ perceptions of their physical ability were grounded in the actual requirements of the job.

Further, one young woman indicated that when she first went to a TVET College and applied for a mechanical engineering course, she was told by the college that she should rather choose something else as she *“would not cope with the subject of ‘drawing’ as she was a woman”*. She therefore registered for an electrical course, but when she later added on the mechanical subjects, she found that *“there was nothing difficult and I could have started with mechanical engineering”*. This finding indicates that addressing gender biases at the career and course guidance levels within TVET colleges is also necessary, as part of the broader priority to strengthen career guidance services for youth entering technical and vocational training pathways.

An important finding with respect to creating initiatives that aim to achieve gender equity is that women respondents in the study indicated that they generally felt safe travelling to and from work, and also felt safe within the workplace, with one indicating *“the guys here are very disciplined and we feel safe working with them.”*

7.4 Training Barriers for Young Women

Technical and vocational education and employment in South Africa was largely reserved for white individuals during apartheid, as described earlier in **Box 6** of this report, and it was specifically dominated by white men (Wildschut & Ngazimbi, 2013). While there has been significant progress in opening the system to black South Africans, there has been much less progress in opening the training system and related employment opportunities to women.

The TVET college system, as a whole, has nearly achieved gender parity in enrollments, with women comprising 49 percent of the student body (HDRC, 2013). As shown in **Table 5**, however, based on the most recently published, gender-disaggregated enrollment and pass rate data, only 25 percent of enrollees in courses of relevance to the manufacturing sector were women (DHET, 2013b).⁹ The pass rates for women, however, were higher in every course in comparison to men. These figures, unsurprisingly, are also reflected in merSETA-registered apprenticeship and learnership enrollment rates. Between 2005 and 2012, women comprised only 7 percent of individuals who had registered and completed an apprenticeship in the manufacturing sector, and women comprised only 27 percent of individuals who had completed a learnership in the manufacturing sector.

⁹ The relatively low enrollment figures in this table—just 6510 students—can be attributed to the low throughput rates of students in the TVET college system. One study, for example, calculated that only 4 percent of NC(V) Level 2 enrollees in 2007 ultimately attained a NC(V) Level 4 qualification (Field, et al, 2014).

TABLE 5: ENROLLMENT AND PASS RATES IN TVET COLLEGES IN 2011 (BY COURSE AND GENDER)

TVET Qualification	Female				Male				% Enrolled	
	Enrolled	Wrote Exam	Passed	Pass Rate	Enrolled	Wrote Exam	Passed	Pass Rate	Female	Male
NC(V) Level 4										
Engineering & Related Design	624	555	192	35%	2070	1835	616	34%	23%	77%
Mechatronics	43	40	21	53%	92	81	29	36%	32%	68%
Sub-Total - NC(V)	667	595	213	36%	2162	1916	645	34%	24%	76%
N Courses										
N3 Engineering Studies	692	629	350	56%	1929	1929	973	50%	26%	74%
N6 Engineering Studies	274	274	204	74%	756	756	546	72%	27%	73%
Sub-Total N courses	966	903	554	61%	2685	2685	1519	57%	26%	74%
Total	1633	1498	767	51%	4847	4601	2164	47%	25%	75%

The reasons for the continued low level of female enrollment in these courses are likely multi-faceted; including occupational gender-typing amongst young women and men, as well as their families and communities, compounded by weak career guidance services, and employer’s recruitment biases.

To date, however, there have been few training initiatives focused specifically on addressing women’s barriers to accessing artisan and machine operator employment, and none of the national training initiatives described in the preceding section currently have this as an explicit emphasis. In a tracer study of graduates from the Accelerated Apprenticeship Training Program (AATP), for example, only 15 percent of the respondents in the study were women, and the unemployment rate of female respondents was nearly double that of the male respondents: 33 percent versus 18 percent, respectively (merSETA, 2012). The AATP has been a very successful initiative and training model, but the lack of an explicit approach to empowering young women has clearly resulted in less optimal outcomes for female participants.

7.5 Creating an Enabling Environment for Young Women

There are examples from the Southern African region of governments developing more intentional models to increase the proportion of women in technical and vocational training and employment. One such example is from Lesotho, where the government has made it a policy imperative to increase, by 70 percent, the enrollments of women and other disadvantaged groups in technical training, including through actively encouraging girls to participate in historically male-dominated courses (UNESCO, 2013). Another example is Tanzania, where the *Technical Education and Training Policy* advocates for expanding the enrollment of young women in the TVET college system, including through increasing the enrollment of girls in science subjects at the secondary school level (who would then be better prepared to join the TVET system); reserving vacancies for qualified women in technical training institutions; and establishing special awards for women who excel in technical education and training (ibid).

The South African government—with its influential skills development frameworks and incentives, collaborations with industry through national artisan development initiatives, and the SIPs and their associated training opportunities—has the resources and partnerships to develop more direct strategies to promote the equal participation of women in broader artisan and machine operator training and employment programs.

IYF therefore recommends that government, in partnership with industry, should develop gender equity strategies for all national artisan development initiatives. Specific activities could include:

- Provision of enhanced, gender-inclusive career guidance services to young women, including pre-enrollment, as well as during training and post-training;
- With input from government and civil society, employers pro-actively address recruitment biases and create workplace cultures that treat women as equals, both amongst their peers and supervisors;
- Development of training programs that help to narrow gendered differences in physical ability, as relevant and necessary for specific positions;
- Ensure that physical ability tests for employment are well-matched to the requirements of each occupation, and revise such tests as necessary;
- Integration of female training targets into SETA Sector Skills Plans; and
- Development of targets related to women's participation in artisan and machine operator training, apprenticeships and employment associated with the SIPs.

8 CONCLUSIONS & RECOMMENDATIONS

8.1 Opportunities for Young People

Sectors & Occupations: The manufacturing sector in South Africa has faced growth challenges over the past decade, but is currently the fourth largest sectoral contributor to the nation's GDP, and the fourth largest sectoral employer of youth. The metals/heavy machinery and food and beverage sub-sectors, in particular, employ a significant proportion of employees in the broader manufacturing sector.

Occupational Demand: Artisan (skilled) and machine operator (semi-skilled) occupations comprise 40 percent of projected demand over the next several years. The food and beverage manufacturing sub-sector has a less skilled workforce than other manufacturing sub-sectors, and therefore may provide easier entry for youth with basic qualifications, though employment in the sector tends to be more seasonal and therefore also less secure.

New Job Creation: There are a limited number of projected new artisan and machine operator jobs in the metals/heavy machinery and food and beverage manufacturing sub-sectors. While the government's *New Growth Path* policy and the SIPs have the potential to create significant numbers of new jobs, individual employers are conservative in their estimates.

Replacement Demand: Projected replacement demand, however, is anticipated to create a substantial number of opportunities, both for artisans and machine operators. Artisans are particularly subject to replacement demand, given the aging workforce in this occupational category.

Scarce Skill Artisan Occupations: Based on this assessment, as well as recent SETA sector skills plans, employers in the two targeted sub-sectors have demand for millwrights; tool and die makers; double coded welders; instrumentation technicians; air-conditioning and refrigeration mechanics; boilermakers; electricians; fitters and turners; heavy equipment mechanics; riggers; and sheet metal workers.

Scarce Skill Machine Operator Occupations: Based on this assessment, as well as recent SETA sector skills plans, employers have demand for crane, hoist and lift operators, professional drivers, and packing and process machine operators.

Geography of Demand: The majority of companies in these two sub-sectors are located in Gauteng Province, with most of the remaining firms based in the Western Cape and KwaZulu-Natal Provinces. The only specific geographic areas in which employers indicated that there could be significant future recruitment needs are in the country's Special Economic Zones and SIP areas.

8.2 The Demand Side: What Employers Want and Need

Minimum Entry Requirement: A matric certificate is a minimum pre-requisite for entry into the two sub-sectors studied in this assessment, with some companies looking for candidates with a matric along with technical theory qualifications from a technical high school or TVET college, particularly in relation to recruitment of apprentices.

Apprenticeship Recruitment: For apprenticeship recruitment, employers generally prefer either N3 graduates from TVET colleges, or graduates from accredited private sector training providers. While one employer had very positive experiences with NC(V) graduates from a TVET college, most preferred 'N' graduates, so that they could deliver practical training through their own facilities, as opposed to the workshop-based training in the NC(V) courses.

Artisan Recruitment: Employers indicated that they increasingly look for highly-skilled, experienced artisans for open positions, rather than recently qualified artisans. This could be a result of the majority of these being replacement positions, rather than new positions, the latter of which would likely be filled through recent apprenticeship graduates, many of whom would be drawn from employers' own apprenticeship training pool. Nonetheless, recently certified artisans have a relatively high employment rate in the South African labor market.

Machine Operator Recruitment: Employers regularly recruit machine operators, particularly in the food and beverage manufacturing sub-sector where they comprise a larger proportion of the workforce as compared to artisans. Employers have a preference, however, for promoting employees in elementary occupations to machine operator roles. Machine operators with basic trade theory knowledge, combined with strong math, literacy and life skills, have a better chance of further career progression.

Technical Skills: Employers expressed demand for young labor market entrants that are better able to rapidly translate trade theory into practice.

Numeracy and Literacy: Employers reported that numeracy and literacy skills are very low amongst young applicants, which presents a particular challenge for recruiting and retaining apprentices, and also prevents youth employed in semi-skilled machine operator occupations from advancing in the industry.

Life Skills: All youth would benefit from enhanced foundational life and work readiness skills. For young people entering more skilled occupations, including artisan roles, they would especially benefit from additional life skills competencies such as problem solving, creative thinking, decision making, public speaking and communication. There are limited opportunities for young people to develop these skills in current technical and vocational training programs.

Commitment: Employers are looking for young candidates with a much stronger interest in and commitment to their trade and employer. The lack of commitment may partly be due to a lack of work readiness skills amongst young people; insufficient career guidance; and negative perceptions stemming from the legacy of racialized artisan development during the apartheid era.

8.3 The Supply Side: Youth Training Provision in the Sector

TVET Colleges: The South African government is making significant efforts to enhance the quality and scale of the public TVET college system, particularly to contribute towards the supply of qualified artisans for industry, and to contribute towards increases in youth employment. The TVET college system, which functions as an alternative secondary schooling system, has nearly 1 million students, and especially caters to youth from disadvantaged backgrounds. The critical role of industry is also emphasized, including providing internship and apprenticeship placements to TVET college graduates.

Employers' Preferred Training Models: Most employers prefer to deliver practical training to new entrants through their own internal training academies, or through private sector training providers with whom they have long-standing partnerships. For this reason, employers often recruit machine operator and apprenticeship candidates with trade theory knowledge rather than practical skills training.

Training Challenges: Despite some positive experiences, most employers interviewed have limited confidence in TVET college graduates, though many are looking for ways to more strategically engage with the TVET college system to support higher-quality delivery of training.

Policy and Financial Incentives Influencing Training: The B-BBEE policy is influencing the scale and type of training that employers provide. There is limited evidence that employers in these two sub-sectors are leveraging the ETI. The SETAs are influential, particularly for funding employers to deliver learnerships, apprenticeships and internships, and increasingly to recruit TVET college graduates for these opportunities.

Innovative Training Models & Partnerships: There are a number of innovative national initiatives that are bringing together government, industry and public TVET colleges to enhance new artisan development. These initiatives, many of which have proven successful, could support the development of more positive collaborations in the TVET college system. These initiatives generally lack, however, an integration of life skills training for youth, or an explicit emphasis on empowering women.

8.4 Barriers & Opportunities for Young Women

Low Proportion of Women Participating in Training for the Sector: TVET college courses of relevance to the manufacturing sector are still dominated by men, with only 25 percent of enrollees in these courses being women; the pass rates for women enrolled in these courses, however, are higher than the pass rates for men. An even smaller proportion of women register and complete apprenticeship qualifications in the manufacturing sector.

Low Proportion of Women Employed in the Sector: Women comprise a minority proportion of the manufacturing sectors' workforce, and an even smaller minority of the workforce employed in artisan and machine operator roles. This holds true for both sub-sectors targeted under this study, though the food and beverage manufacturing sub-sector has a higher percentage of female artisans than the broader manufacturing industry.

Opportunities for Women: There is scope to significantly increase the proportion of young women participating in technical/vocational training in the manufacturing sector, and to increase the proportion of young women employed in machine operator and artisan occupations. While employers indicated that men, on average, score higher on physical strength and endurance tests that are required for certain artisan occupations, this reason alone is not sufficient to explain the low proportion of women in the sector. This is further evidenced by this study's finding that a significant number of scarce skill artisan occupations, as well as most machine operator positions, do not require a high degree of physical strength, but do require a high degree of visual acuity and dexterity—areas where women typically score higher than men.

Barriers for Women: There are a number of barriers faced in increasing the proportion of women training for, and employed in artisan and machine operator occupations. A significant issue is individuals', households' and communities' gender-typing of artisan and machine operator occupations, which influences and informs the career choices and aspirations of young women and young men. This is often further reinforced by gendered recruitment biases at the employer level, as well as workplace cultures and norms that discourage female employment in artisan and machine operator roles. Changing these attitudes, perceptions and biases will require a multi-faceted approach, which will take time and a concerted effort.

Limited Focus on Increasing Participation of Women in the Sector: Despite the multitude of barriers limiting young women's participation in training and employment in artisan and machine operator occupations, there are currently no national training initiatives with this explicit emphasis. Unsurprisingly then, evidence from a recent national artisan development initiative indicates that female graduates of these programs have higher unemployment rates than male graduates.

8.5 Recommendations

Enhance TVET College Training Quality: Enhancing the quality of holistic training at public TVET colleges, including occupational trade theory, practical training, numeracy, literacy and life skills training is a critical priority, given that the system has been prioritized for developing new artisans, and that it already operates at a national scale. This study recommends a continued focus on strengthening both the National Technical Education Certificate qualifications ('N') courses and National Certificate Vocational [NC(V)] courses.

Enhance Partnerships Between Industry and TVET Colleges: Employers expressed an interest in developing more strategic partnerships with TVET colleges, in order to support their enhanced delivery of theory and practical training. Expanded engagement platforms with clear objectives and practical operational models are therefore recommended.

Integrate Life Skills into Training Programs: Given the ubiquity of employers' responses related to life skills and work readiness deficits amongst youth, this study recommends that life skills should be integrated into all TVET college courses, part qualifications, learnerships and apprenticeships, including the new Quality Council for Trade & Occupation (QCTO)-registered qualifications. Life skills training should include a focus on personal competencies, work readiness and professional growth skills, as well as lessons that help to engage with and dispel gender stereotypes.

Strengthen Career Guidance Services: There is a need for strengthened career guidance services that help young women and men make sense of the complicated set of technical and vocational training and employment pathways in South Africa, and support youth to select training routes that are best suited to their respective needs and local labor markets. There should ideally be a continuum of targeted career guidance services—from pre-enrollment through to graduation—with pre-enrollment services helping young people to decide if these pathways are aligned to their personal and professional goals.

Career Guidance Services for Women: Career guidance services should also be designed to more explicitly raise young women's awareness of promising employment opportunities and pathways in the manufacturing sector, but only if paired with initiatives that work with employers to increase the training and recruitment of qualified female applicants.

Create an enabling environment for young women: Given the range of innovative national artisan development initiatives currently being implemented through collaborations between government, industry, TVET colleges and civil society, there is significant scope for integrating a more direct focus on increasing the proportion of women participating in artisan and machine operator training and employment, including in the sub-sectors targeted under this study. IYF recommends that government, in partnership with industry and civil society, should integrate gender equity strategies into all national artisan development initiatives. Specific activities could include more gender-equitable career guidance services; addressing physical ability requirements where relevant; ensuring that physical ability tests for employment are not overused; working with employers to address recruitment biases and create inclusive workplace cultures; and integration of gender targets into SETA sector skills plans and SIPs.

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ANNEX 1: KEY INFORMANT INTERVIEW LIST

Government & Industry Stakeholders

Government Institutions

- Department of Higher Education and Training (DHET)—National Artisan Development (NAD) Division
- Economic Development Department (EDD)
- Food and Beverage SETA (FoodBev SETA)
- Manufacturing, Engineering and Related Services SETA (merSETA)

Labor Unions

- Food and Allied Workers Union (FAWU)
- National Union of Metalworkers of South Africa (NUMSA)
- Solidarity

Industry Associations

- Steel and Engineering Industries' Federation of South Africa (SEIFSA)
- The Pressure Equipment Manufacturers Association of SA
- The Ferro-Alloy Producers Association
- South African Chamber of Baking
- South African Meat Processers Association

Employers

Large (201+ employees)

- ArcelorMittal
- Barloworld Equipment
- Clover
- Fair Cape Dairies
- Highveld Steel
- Kellogs
- Kies Beyers
- MacSteel
- Nestle
- Sandvik
- Scaw Metals
- South African Breweries (SAB)
- Tiger Brands Enterprise Foods

Medium (51–200 employees)

- Pioneer Foods
- Sunbake
- HeatTech Geysers

Small (20–50 employees)

- Gunric Valve
- Robotic Innovation

Training Providers

Private Sector Training Providers

- Artisan Training Institute
- College of Production Technology (CPT)
- Colliery Training College (CTC)
- Nuclear Energy Corporation (NECSA) Training Centre
- Optimum Learning Technologies
- SAJ Competency Training Institute
- Technotrain

Industry Associations—Internal Training Academies

- SEIFSA Training Centre
- Solidarity Training Centre

Employer Training Academy

- Imperial Technical Training Academy

Non-profit Training Provider

- St. Anthony's Education Centre

Youth Focus Groups

- MacSteel
- St. Anthony's Education Center

ANNEX 2: LABOR MARKET ASSESSMENT INSTRUMENTS

Macro-level Stakeholders (i.e. Policy & Industry)

A. General Information

1. Name of person (or persons) interviewed and position: _____
2. Gender of person (or persons) interviewed: _____
3. E-mail of person (or persons) interviewed: _____
4. Name of institution/organization: _____
5. Focus of institution/organization: _____

B. Sector Status

6. What are the key economic and employment growth areas in your industry/sector?
 - a. What types of skills are required to drive growth in these areas?

C. Employment & Skills Needs

7. Can you list the artisan, machine operator and other skilled to semi-skilled technical occupations that absorb the greatest number of your entry-level hires, learners and/or apprentices in your sector?

a. **Tip for the interviewer:** We have identified the following skilled and semi-skilled occupations as scarce skills across the foodbev, metal/heavy machinery manufacturing sub-sectors:

- **Artisans:** Electricians; welders; millwrights; boiler makers; riggers; mechanics; sheet metal workers.
- **Plant/machine operators:** Machine operators; crane/hoist operators; welders.

8. What are the main technical skills required for entry into the artisanal occupations? And for the plant/machine operator occupations?
9. Any additional skills, such as math, ICT and/or language skills needed?
10. What is the minimum educational requirement (i.e. N2; NCV4; matric; etc.) for entry into artisan occupations? And into plant/machine operator occupations?
11. What are some career pathways for young people entering into these positions/occupations?
12. What soft/technical skills are important for employees to succeed in these positions (i.e. teamwork; conflict management; leadership; communication, etc.)?

D. Recruitment & Retention

13. In terms of future recruitment for these positions, does your industry have any specific targets for hiring women, people with disabilities, and previously disadvantaged populations (i.e. African, Black)?
14. What challenges, if any, does your industry face in recruiting young women for these occupations?
15. What is your general perception of young people's readiness for work in these occupations?
16. Are there staff retention challenges in the positions that we have discussed? If so, what are the primary reasons?
 - a. Misaligned expectations amongst employees
 - b. Attitude/lack of relevant life skills
 - c. Lack of relevant technical skills
 - d. Recruitment from other companies
 - e. Transport challenges
 - f. Health
 - g. Other
17. What specific challenges do young women face once employed in these occupations?

E. Training

18. Are there sufficient training providers to meet these skills gaps and challenges? What types of training providers (i.e. FET, NGO, private, workplace) do you feel have been most successful, and why?
 - a. Are there any training providers that you suggest we speak to?
19. Do you know of any examples of companies, which have successfully implemented strategies to prepare more young people (new entrants) to access employment in these occupations? Can you tell us a bit about them?
20. Are you aware of any specific training initiatives in your industry that are preparing young women for employment in the positions discussed? If so, who are implementing these initiatives?

F. Alignment with Skills Development Policies

21. To what extent do you think that employers in your industry/sector are driven to comply with the skills development requirement of the B-BBEE Scorecard? Is it a challenge for them?
 - a. Have employers in your industry prepared plans for how they will comply with the new skills development scorecard targets, particularly those related to training unemployed youth?
22. Are employers in your sector generally aware of the requirements related to the Accords (Youth, Skills, Local Procurement, etc) and do you think employers are taking steps to meet these agreements?

23. To what extent do you think employers in your industry/sector are aware of and/or take advantage of the various incentives to support youth employment and skills development, such as the youth wage subsidy and SETA discretionary grants?

a. If employers are not aware of or there is low take-up, why is this?



Employers

A. General Information

1. Name of person (or persons) interviewed and position: _____
2. Gender of person (or persons) interviewed: _____
3. E-mail of person (or persons) interviewed: _____
4. Name of business: _____
5. Sector/sub-sector: _____
6. Number of employees in your company: _____
7. Approximate percentage of women employed in your company: _____

B. Sector Status

8. What are the key economic and employment growth areas in your industry/sector?
 - a. What types of skills are required to drive growth in these areas?

C. Skills Needs

9. Can you list the artisan, machine operator and other skilled to semi-skilled technical occupations that absorb the greatest number of your entry-level hires, learners and/or apprentices in your company?

- **Tip for the interviewer:** We have identified the following skilled and semi-skilled occupations as scarce skills across the foodbev, metals/heavy machinery manufacturing sub-sectors:
 - » **Artisans:** Electricians; welders; millwrights; boiler makers; riggers; mechanics; sheet metal workers.
 - » **Plant/machine operators:** Machine operators; crane/hoist operators; welders.

10. Can you project annual hiring needs for these positions, inclusive of turn-over?
11. What is the estimated proportion of women employed as artisans or enrolled in apprenticeships? What is the estimated proportion of women employed as plant/machine operators?
12. What are the main technical skills required for entry into the artisanal occupations? And for the plant/machine operator occupations?
13. Any additional skills, such as math, ICT and/or language skills needed?

14. What is the minimum educational requirement (i.e. N2; NCV4; matric; etc.) for entry into artisan occupations? And into plant/machine operator occupations?
15. What are some career pathways for young people entering into these positions/occupations?
16. What soft/technical skills are important for employees to succeed in these positions (i.e. teamwork; conflict management; leadership; communication, etc.)?

D. Recruitment & Retention

17. How do you currently recruit for the discussed entry-level positions (including for learnerships and apprenticeships)?
18. What mechanisms does your company use to identify/screen/assess candidates for these positions?
19. In terms of future recruitment for these positions, do you have any specific targets for hiring women, people with disabilities, and previously disadvantaged populations (i.e. African, Black)?
20. What challenges, if any, do you face in recruiting young women for these occupations?
21. If you have recruited young people in the last year, what is your general perception of them?
22. Are there staff retention challenges in the positions that we have discussed? If so, what are the primary reasons?
 - a. Misaligned expectations amongst employees
 - b. Attitude/lack of relevant life skills
 - c. Lack of relevant technical skills
 - d. Recruitment from other companies
 - e. Transport challenges
 - f. Health
 - g. Other
23. What specific challenges do young women face once employed in these occupations?

E. Training

24. Does your company offer any training programmes, particularly for the positions discussed? If so, what are they?
 - a. Who are the training providers you work with (FET, NGO, private, workplace)? Any views on which are most effective (and get full contact details if possible)
25. Has your company received discretionary SETA grants for training programs? If so, what type of training are you implementing with this funding? Have you found these programs to be effective?

26. Are there any gaps in training provision, and how do you think these training gaps could be addressed?
27. Does your company have any specific training programs for preparing young women for employment in the positions discussed? If so, what are they?

F. Alignment with Skills Development Policies

28. Does your company try to comply with the skills development requirements in the B-BBEE scorecard?
 - a. If yes, what has been your experience of this? Opportunities and challenges?
29. Is your company addressing the agreements in the various National Skills and Youth Employment Accords in any way?

G. Future Training Initiative Participation

30. Would your company be potentially interested to participate in an initiative that seeks prepare more young people, and particularly young women, for employment in your industry, and particularly for the positions that we have discussed?

If answered yes to above:

31. What kind of training model would be attractive for the company, particularly for the positions discussed (i.e. youth trained before they enter; staggered training and workplace experience, etc.)?
32. Would any of the following types of partnership activities with a non-profit vocational training center and/or public FET college be of potential interest?
 - a. Helping to inform youth selection criteria and systems?
 - b. Providing input into the design of technical training content and curriculums?
 - c. Providing short workplace experience opportunities to students while they are studying (i.e. 1-2 weeks)?
 - d. Providing short workplace experience opportunities to lecturers/trainers (i.e. 1-2 weeks)?
 - e. Employees volunteering as guest speakers and/or mentors to students?
 - f. Providing apprenticeship, learnerships and/or internships to training graduates?
 - g. Other suggested ideas?
33. What level of supervision and/or mentoring could the company offer to young people participating in workplace exposure and training programs?

Please also ask employers if they would be willing to allow us to have a focus group with their young employees in the target positions/occupations.

Youth (Focus Group Discussions)

Introductions

- Explain the purpose of the focus group discussion and how the information will be used.
- **Explain and maintain confidentiality:** Names will not be used, and we will not share any personal data or notes with employers.
- **Process:** What is expected of participants, including length of discussion
- **Participation is voluntary:** Participants can leave or not answer any question at any point.
- Share your name and contact information for questions
- **Obtain written or oral consent:** Ask “Do you agree to participate”. If yes, the moderator can sign the consent form on behalf of all participants.
- Ask for permission to take notes.
- **Establish ground rules:** Respect for different views, privacy of information, no wrong answers, one person speak at a time.
- **Individual introductions and ice breaker:** Allow each youth to introduce themselves, and state their favorite song.

A. General Information

1. Company where youth are employed
2. Complete questions A–E using table below:
 - a. Name of employee
 - b. Gender
 - c. Age
 - d. Educational qualifications (i.e. matric; NCV; etc.)
 - e. Position/occupation

(a) Name of employee	(b) Gender	(c) Age	(d) Educational qualifications	(e) Position within the company

B. Accessing Employment

3. How did you get your jobs in this company?
4. What work experience did you have when you entered the company?
5. What training had you received before you accessed the job and where did you access this training? Either way (whether you received training or not) what skills did you bring to the company? And what skills do you wish you had?

C. On-the-Job

6. What are some of the challenges that you faced in your first month of work? How did you deal with these? Are they still problems for you? Have new challenges emerged?
7. What is the best thing about working here? And the most difficult thing?
8. Do you have a mentor or a more experienced person who works at this company that you can talk to about issues or problems at work? Or is there someone else that you talk to about work—who is this?

D. Training and Skills

9. Have you received any training since you joined the company? What was it? What did you think of it?
10. Do you feel that you have the right skills and knowledge to do your job now? What skills do you mainly use in your job? Which skills do you wish you had more of?

E. Employment Quality

11. Do you think that this company welcomes young people? Why do you say that?
12. Do you think that you are likely to get a promotion in this company in the next year or two? Why do you say that?
13. What are your career goals?

F. Closing

14. Do you have any questions for me/us?

FOR WOMEN ONLY GROUPS—PLEASE ALSO ASK:

A. Accessing Employment

1. Were there specific challenges you faced as young women to get your jobs? How did you overcome these challenges?
2. Are there many young women in your company doing your type of job? If not, why do think that is?
 - a. What do you think would need to change to increase the number of young women doing your types of jobs?

B. On-the-Job

3. Do you think your employer understands the specific challenges faced by young women doing your types of jobs? Why or why not?
4. Are there any jobs in this company that you think you wouldn't be able to do as a woman? Why?
5. Are there any jobs in this company that you think women are better able to do than men? Why?

C. Employment Quality

6. How safe do you feel in the workplace? And in travelling to and from work? Why do you say this?
7. Do you think that men get more opportunities for training or promotion than women in your types of jobs? Why do you say this?

D. Closing

8. Do you have any questions for me/us?

Training Providers

A. General Information

1. Name of person (or persons) interviewed and position:
2. Gender of person (or persons) interviewed:
3. E-mail of person (or persons) interviewed:
4. Name of organizations/institution:

B. Big Picture

5. The main objective of the training provider's organization
6. Describe the average training participants (sex, age, education, household income, etc.)
7. Average number of training participants annually
8. Average proportion of women participating in training courses
9. Where does your organization receive its funding from? (i.e. enrollment fees; SETAs; companies; private donors; etc.—*does not have to be specific names of donors, if the training provider does not want to share*)

C. Selection

10. How does the organization advertise/market its courses?
 - a. Are any specific efforts made to increase the enrolment of young women in courses where they are traditionally underrepresented (i.e. welding)?
11. How does your organization select course participants?
 - a. Are there minimum requirements/qualifications required?
 - b. Is there any type of assessment process?
12. What type of career guidance do participants receive?
 - a. When do they receive this career guidance—before enrolment, after enrolment, or both?

D. Core Skills Taught & Complementary Courses

13. How do you determine the skills gaps which need to be filled? What specific skills are you seeing lacking in young people/new labour market entrants?
14. Which entry-level, semi-skilled to skilled occupations have you found are most in demand by employers in the manufacturing sector?


- a. Which training programs/courses does your organization offer, which responds to this demand?
 - b. How are these courses structured?
 - c. How was the content for these courses designed? Did companies provide any input? When was the curriculum designed and last updated?
15. Do you integrate any of the following complementary skills into your courses?
- a. Life skills
 - b. ICT
 - c. Numeracy/literacy
 - d. Language

E. Training Quality

16. Describe an average teacher for these courses and her/his background and qualifications?
17. Are there any professional development opportunities for teachers at your organization? If so, what kind?
18. What, in your experience and opinion, have been the key success factors in really good training interventions that you may have participated in or observed/heard about?
19. Have you ever worked in partnership with other training providers or institutions to deliver training to young people?
- a. Who were these other training providers (NGO/FET/Private/Workplace)? What was the nature of these partnerships? How did it go?
20. Have you noticed any difference in relation to training young women and young men?
- a. Do you think that there are any specific strategies which should be employed to enhance the success of young women in the workplace?

F. Job Placement

21. Briefly, can you describe your organization's job placement strategy and services?
22. To what extent are the young people you are training finding employment?
- a. Which companies (sectors), occupations?
23. What challenges, if any, do you face in placing young women into employment in sectors and occupations where they have traditionally been underrepresented? How do you deal with these challenges?
24. To what extent are you seeing employers with whom you work trying to align their training interventions with the B-BBEE scorecard?

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- a. Has this affected the extent to which they are willing to employ and/or train and support new entrants?
 - b. Similarly have the Accords resulted in changes? Has the Employment Training Incentive?

G. Looking to the Future

- 25. Are there any specific areas where your company/organization could benefit from additional capacity development and support to improve the way in which you address critical skills gaps for young people?
 - a. What are these and what would be the specific nature of the support required? (This could include revised training content, workplace experience for lecturers, partnerships, etc.)



The International Youth Foundation (IYF) invests in the extraordinary potential of young people. Founded in 1990, IYF builds and maintains a worldwide community of businesses, governments, and civil-society organizations committed to empowering youth to be healthy, productive, and engaged citizens. IYF programs are catalysts of change that help young people obtain a quality education, gain employability skills, make healthy choices, and improve their communities.

To learn more, visit www.iyfnet.org.