



NATIONAL FOUNDRY TECHNOLOGY NETWORK (NFTN) Annual Report

2019/20

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Prepared for:

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the dtic

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List of Acronyms

AEL	Air Emissions License
CSIR	Council for Scientific and Industrial Research
DDG	Deputy Director General
DEFF	Department of Environment, Forestry and Fisheries
EMCO	Executive Management Committee
GFTC	Gauteng Foundry Technology Centre
KPA	Key Performance Area
KPI	Key Performance Indicators
MOA	Memorandum of Agreement
NCPC-SA	National Cleaner Production Centre South Africa
NFTN	National Foundry Technology Network
OEMs	Original Equipment Manufacturers
PED	Pressure Equipment Directive
QCTO	Quality Control for Trades & Occupations
QMS	Quality Management Systems
RECP	Resource Efficient and Cleaner Production
the dtic	Department of Trade, Industry and Competition
TIPS	Trade & Industry Policy Strategies
WFO	World Foundry Organization

This document forms part of the formal reporting structure for the National Foundry Technology Network (NFTN) outlining all its activities as contained in its business plan and covers the period **01 April 2019 to 31 March 2020**.

1 MESSAGE FROM THE PROGRAMME LEADER

The 2019/20 financial year has been a challenging year for the manufacturing industry in South Africa, and the programme as well. This was compounded by electricity outages, which negatively affected the foundry industry. Foundries are among the largest consumers of electrical energy and rely heavily on a steady supply of electricity for their production. Unplanned power outages not only disrupt the production process of foundries, but they also damage facilities and equipment, particularly furnaces. This has contributed immensely to the declining output of the sub-sector in the year under review. The restructuring in the CSIR has made it difficult for the smooth operation of the programme due to uncertainties of the labour force which resulted in delays of support services. The secondment of the project coordinator to the DSI almost derail the skills development plans, as the incumbent was responsible to oversee the deliverables of the area. On the positive note, the newly implemented plan to source the service providers through the EOI will yield better results of reducing the lead-time. Currently all the services of NFTN are sourced through the RFP process which takes almost 6-12 weeks to finalise. The EOI process will reduce this process to 4- 6 weeks at most, since the service providers will be in our panel of suppliers.

The foundry sector also struggled due to contraction in the manufacturing industry such as Rail (Transnet, Prasa, etc) and Mining sectors where the foundries supplies mainly into these sectors. In September 2019 Metso announced that it is shutting its doors in Isithebe in KZN following its merger with Outotec. This resulted in about 200 job losses. In Gauteng, Besaans Foundry, a subsidiary of Kutana steel, filed for liquidation and closed its doors in December 2019, also shedding all jobs. This follows about 300 job losses in the previous year where foundries such as Ajax, Forbes brothers and Pan Pattern Makers also closed doors.

With the government interventions, *inter alia* procurement accord, mining charter and South African Automotive Masterplan 2035, and local content program we are hopeful that these will stimulate demand within the manufacturing sector.

The NFTN continues to support the foundry industry towards competitiveness and localization of strategic components. NFTN's support resulted in certification of three foundries with Pressure Equipment Directive (PED) (2014/68/EU), namely: KEW, RELY-NTRACAST and VESTCAST, making them eligible to export pressure equipment.

Foundries are still experiencing challenges to comply with environmental regulations. In the year under review, two foundries - Olde World and Southern Cross - were fined by their respective municipalities for non-compliance and threatened with closure. The municipalities, in recognition of the work the NFTN continues to support the foundries towards environmental compliance and to avert closures it eventually reduced the fines. To date, the NFTN has managed to support 10 foundries and will continue to support the industry to avoid closure while we await the outcome of commissioned environmental study. The idea is to use the outcome of the study to influence the Department of Environment Forestry and Fisheries to change the current environmental policy for the foundry industry.

The NFTN is playing a critical role in bridging the skills gap and collaborate with tertiary institutions such as GFTC, VUT and UJ towards the development of the foundry industry. Where the NFTN lacks capacity to support the foundries we will continue to collaborate with the TLIU, NCPC- SA, TIHMC, CMRDI and the WFO. Further the NFTN together with the industry associations will continue to disseminate information to keep the industry abreast with latest developments through technical forums. For the first time, the core foundry skills such as patterns and mould making are being offered at artisan level, students who complete their artisanship, will be issued with an accredited certificate that is certified by QCTO.

To the NFTN team and **the dtic**, thank you for your continuing support, the 2019/20 financial year has been a challenging year for us all. Your commitment is greatly appreciated.

Sandy Majatladi

NFTN Programme Leader

2 EXECUTIVE SUMMARY

The NFTN continues its mandate to support and facilitate growth and transformation in the casting industry through focused interventions designed to support improved foundry competitiveness and the industrialisation of new technologies and products.

The 2019/20 was a year of transition for the NFTN, as restructuring at the CSIR and a decision to align support programmes of **the dtic** resulted in NFTN moving to the newly formed CSIR Smart Places: Hosted Programmes unit. This resulted in an operational shift closer to the NCPC-SA, also a programme of the **the dtic**. The executive committees of the both the NCPC-SA and NFTN were merged into the current combined EMCO.

On a strategic level, the year was one of partnership building. Much work was put into engaging and meeting with relevant stakeholders in a bid to formalise partnerships that will reap longer-term benefits. These included the sector associations, OEM bodies and international foundry experts. This groundwork will yield results in the new financial year.

Activities during the year were also focused on taking stock and addressing backlogs and gaps. Whilst this is not a completed process, progress was made on projects that had experienced delays. Administrative processes, such as procurement, were addressed to allow for smoother running in future.

The NFTN commissioned an industry study to understand the level of environmental compliance of the foundry sub-sector. The survey integrated the needs of key stakeholders and posed a set of questions to foundries which allowed a first-hand understanding of the challenges facing the sector.

Overall, the 2019/20 financial year was one of many changes and challenges, which left its footprint on the team structure. The initial inclusion of NFTN team members into the NCPC-SA reporting structure was not ideal, as the team's industry support interventions are of a highly technical nature, requiring a sound metallurgical background for informed decision making. The reporting structure of the NFTN team has now reverted back to the programme leader.

The unexpected secondment of the NFTN project coordinator outside of the CSIR, also left the NFTN severely under-resourced. Skills development activities that were monitored by the project coordinator were impacted negatively, resulting in some Quarter 2 deliverables not being met. The role of project coordinator is critical for the NFTN to ensure optimum operation of the programme.

In collaboration with the NCPC-SA, the NFTN had an opportunity to include a Foundry Workshop in the 2019 NCPC-SA Industrial Efficiency Conference. As part of the collaboration the NCPC-SA technical team also assessed five foundries for water and energy efficiency improvements, and it is hoped the recommendations implemented will pave the way for savings in these companies. One of the NFTN technical advisors is also undergoing RECP expert-level training, offered by the skills development department with the aim to implement energy management at foundries in future. Another technical advisor will be enrolled for training in future to capacitate the NFTN.

NFTN Output and Outcome Highlights 2019/20

The work of the NFTN in individual foundries continued to provide the basis for its impact in the financial year under review. Much of the sector work made progress, but direct impact may take some time to be felt. Technical and regulatory interventions such as PED and Quality Management Systems are multi year's projects, which spans more than one financial year. Pressure equipment directive takes 18 – 36 months to complete and it is divided into implementation phase and certification phase. The project is implemented parallel to the production of the foundry to ensure that the foundry is competent to comply. Some challenges experienced during the process are new orders that the foundries requires to implement to test its capability to achieve the intended goals. Sometimes the OEMs as well plays a significant roles as the tests are depended on their outcome for approval. These has been a learning curve for the NFTN and the foundries on the implementation of this standard since it's the first time it was implemented. The process also has to somewhat affected the budgeting of these projects as the financial commitment spans over multiple financial years for some milestone to be achieved.

The final stage is the certification, which is executed by the accredited independent bodies. The same applies to the ISO 9001 quality management system that follow the same sequence but at least takes lesser period. It also has the implementation phase and certification phase carried out by accredited independent bodies such as SABS, Intertek and TUV Rheinland just to name the few. The project initiation date of these projects determines their end date, which also led to the budgeted funds carried over to the new financial year because of committed funds not yet dispersed. Typical example in this case was foundries during the ISO9001;2015 certification which delayed beyond NFTN's control thus leading to the project overlapping to the next financial year.

Firm-level support

- Six (6) foundries, namely Alcutech, Fabcast, Jaybee, Jeorg, KCS and Proco, were awarded ISO 9001:2015 certification. The NFTN technical advisors assessed the needs of the individual foundries and provided the support needed to implement a QMS and address shortcomings that could impede certification. Since ISO 9001 is a requirement for access to many markets, such as OEMs and exports, this certification increases the opportunities for the foundries to compete. Four (4) more foundries, Cyclops, Nicast, Viking and Yellow Star, have been enrolled in a process to begin a QMS and PED implementation with the support of the NFTN.
- The Kwazulu Natal and Free State provincial authorities fined two foundries for non-compliance of environmental regulations. However, both authorities agreed to reduce the fines, in recognition of the support that the NFTN and **the dtic** provide towards facilitating compliance with environmental regulations. As a result, the two foundries - Olde World and Southern Cross - were only fined R20 000 and R25 000, respectively from original R625 000.00 per foundry.
- Three (3) foundries, namely KEW, Rely-Intracast and Vestcast, were certified as compliant to the Pressure Equipment Directive (PED), an EU directive that sets out the standards for the design and fabrication of pressure equipment. This compliance will allow the foundries the opportunity to compete in the oil and gas markets, where such products are typically imported.
- Three (3) foundries, namely Nicast, Jay-Bee and Fabcast, were supported under the capacity building programme. This included a tooling development at Fabcast for the development of transformer valves, which is awaiting OEM's approval. A layout optimisation was conducted at both Nicast and Jay-Bee foundries to improve their productivity and the efficiency of their processes.
- Four (4) foundries; Alcutech, Active, High Duty and Prevail underwent resource efficient and cleaner production (RECP) assessments during the year, with a fifth (Quantum) requesting a postponement of the assessment. Two assessments (an environmental and an energy assessment) were undertaken in High Duty Castings, and RECP assessments took place in Active Foundry, Alcutech and Prevail Engineering. The five assessments identified potential energy and water savings that could save the companies a total of R 5.6 million per year.

Sector support

- The two remaining students who are part of the Effsafound project have finalised their theses and their MSc degrees were granted. The students will present the outcomes of the project to the NFTN in the new financial year, once travel restrictions, as a result of COVID-19, have been lifted.
- After an unexpected delay due to the absence of an Innovation Hub CEO, the NFTN finalised a new MOA with the Innovation Hub Management Company in December 2019. This will allow a project in the new business plan to provide support through the Innovation Hub in the use of foundry sand.
- NFTN commissioned an industry study to understand the level of environmental compliance of the sector. The survey integrated the needs of key stakeholders and posed a set of questions to foundries which allowed a first-hand understanding of the challenges facing the sector.

In the first phase, desktop and telephone research identified 133 foundries countrywide. By March 2020, a total of 72 foundries had been visited and additional 11 visits had to be cancelled due to the COVID-19 lockdown. The data gathered will be compiled into a report, the first draft of which has since been presented to, and discussed by, EMCO in April and May 2020, but is still awaiting approval.

- The installation of the foundry equipment donated to the Gauteng Foundry Training Centre (GFTC) was completed. This equipment allows the GFTC, as the only institution in South Africa accredited by the QCTO to offer training courses that provide foundry industry skills, and holistic and practical training to artisans. A total of 34 students enrolled for their first year in core foundry skills, 17 students in pattern making, and 17 students in moulding.
- The NFTN also concluded its first year of the three-year contract to provide funding for the supply of consumables for foundry training at the GFTC.

Stakeholder engagement and communication

- As the member country of the World Foundry Organization (WFO) and the only member on the continent, the NFTN participated in the 2019 GMTN show hosted in Germany from 25 - 30 June. In addition, the NFTN was included on the exhibition pavilion of the WFO and formed part of the technical forum for professional development of foundry skills.

- The NFTN participated in the 59th Slovenian technical forum hosted in Portoroz in 2019. The technical forum attracted over 25 member countries and technical papers on foundry related challenges were presented. A new Management of Foundry Association was formed of which the NFTN is a member. The main objective is to help associations to raise their game by identifying and developing best practice and enabling the sharing of information and experience among members.
- The NFTN also hosted a very successful foundry workshop led by Prof Adel Nofal, professor of metal casting and former president of Central Metallurgical R&D Institute, Egypt. Prof Adel visited South Africa after officials from **the dtic's** metal sector desk visited Cairo. He presented a technical paper on Cast Irons to give more understanding of the basic metallurgical principles affecting the production of quality cast irons. NFTN also had an exhibition stand, and over 450 delegates attended the conference where the workshop was hosted.
- In addition, the NFTN participated in five industry events, including the first Local Southern African Manufacturing Expo and the Manufacturing Indaba national event and three regional events, nationwide where the exhibition stand attracted an estimated 2600 visitors. Most of the engagements at the events were informal, but many visitors were introduced to the NFTN for the first time. Although few direct links with new contacts were made, regular participation in these types of events lead to a recognisable industry profile and increased understanding of the sector support available.
- Work was also done to update and migrate the website, which is now back to its registered domain, www.nftn.co.za. A content review process has been completed and the restructuring, and changing the look and feel of the website is in progress.
- The NFTN was featured or mentioned in 11 media articles / interviews and an NFTN advert was placed in Engineering News, and most recently in the March/April edition of Castings SA.

3 EXPENDITURE ANALYSIS

The NFTN and **the dtic** signed business plan in June 2019 with a budgeted amount of **R27 995 million (VAT Inclusive)**. In September 2019, **the dtic** communicated that the budget would be reduced and a reduction in project deliverables may be necessary. However, due to the funds carried over from the previous financial year of **R11 101 341.00 (VAT inclusive)**¹, the reduction in the 2019/20 budget did not affect project deliverables, and an amendment was deemed unnecessary. The allocated amount of **R18 795 000.00(VAT inclusive)** was confirmed to the programme. The money will be allocated into two tranches of **R10 000 000** and **R8 795 000.00** during October and November 2019, respectively.

A final budget payment of **R13 995 000 (VAT inclusive)** was received for the financial year in January 2020, after signing of the new MOA. The **R4 700 000 (VAT inclusive)** balance that was due to the programme was reprioritised to enable the NCPC-SA to implement the Ministerial Priority Project on managing the disposal and recycling of undeclared, abandoned and seized clothing, textiles, leather and footwear merchandise.

A detailed report on the finances of the NFTN were submitted by the CSIR in February 2020, signed by the Executive Manager. Since then a number of EMCO meetings have been held to discuss the status quo. The following is a summary report of the finances for the period 1 April 2019 to 31 March 2020.

¹ R10 321 341 carried over + R780 000 GDED funds

NFTN 2019/20 Budget and Actual Summary (VAT exclusive) as at 31 March 2020

The financial statement below excludes all outstanding payments due of projects that overlap into the new financial year.

Income/Funds Received	Budget 2019/20 (VAT Exclusive)	Actuals RECEIVED (VAT Exclusive)	Actuals YTD USED (VAT Exclusive)	diti Budget 2019/20 (VAT Inclusive)	Actuals RECEIVED (VAT Inclusive)	Actuals YTD (VAT Inclusive)
INCOME						
Funding from previous year	8 975 079	8 975 079	8 975 079	10 321 341	10 321 341	10 321 341
Diti grant (current year)	16 343 478	12 169 565	1 554 467	18 795 000	13 995 000	1 787 637
						-
Total Income/Funds received	25 318 557	21 144 644	10 529 546	29 116 341	24 316 341	12 108 978
EXPENSES						
Manpower	4 815 000		3 278 337	5 537 250		3 770 088
Project investment ¹	17 450 000		4 959 467	20 067 500		5 703 387
Indirect costs	235 400		103 673	270 710		119 224
Support Services / CSIR hosting	3 470 000		2 184 414	3 990 500		2 512 076
Expenses	25 970 400		10 525 891	29 865 960		12 104 775

Reprioritisation

As mentioned above, a reduced budget allocation was confirmed by **the dtic** in Quarter 2 and the outputs adjustment was deemed unnecessary since there was still funds carried over from the previous financial year.

Cost containment

The NFTN and indeed the entire CSIR continues to implement cost containment measures in accordance with the National Treasury notes. A number of examples of the implemented austerity measures during the year include:

- Use of video conferencing where possible. It is worth noting that the majority of NFTN interventions take place at foundry sites, and physical visits is a prerequisite to conduct assessments. Video conferencing options were explored where possible, to reduce travel costs.
- Shorter meeting and workshop duration, to reduce catering requirements and costs.
- Reduction in number of exhibitions.

Deviation Statistics

The NFTN has not deviated from the procurement and cost containment measures imposed on the CSIR and as such there are no deviations statistics to report on.

Savings/New Source of Income

The NFTN has no new source of income to report on as it only receives funding from **the dtic**.

Increased Revenue

No additional revenue was received from any party.

Interest Capitalised

The CSIR has capitalised interest of R440 080 excl VAT for funds received during the reported financial year. This interest will be part of the funds that will be rolled over and be available for use in financial year 2020/21 following the approval from **the dtic**.

Audit Risk Register

No audit risk was identified during Quarter 4, however the audit risk referred to the CSIR Human Resource Department regarding the project coordinator has been resolved. The salary of the seconded project coordinator has been updated and the financial statement shows that he is no longer in the employ of the NFTN.

4 ANNUAL PERFORMANCE AGAINST STRATEGIC OBJECTIVES

An overview of interventions achieved during the 2019/20 financial year is highlighted in Table 1 below.

Description	Total Number
Number of foundries supported under the capacity building programme	7
Number of foundries supported under the technical and regulatory support	16
Number of participants enrolled under Skills development and knowledge transfer in moulding and Pattern making	34
Number of industry level interventions to support the foundry sector	2

Table 1: Summary overview of achievements

5 FOUNDRY CAPACITY BUILDING

The support provided under the foundry capacity building programme provides assistance to foundries with productivity and efficiency improvement, as well as the provision of support for the localisation of manufactured products.

Product and tooling development

Two interventions to optimise the operations of foundries were implemented in Nicast and Jay-Bee foundries. The Fabcast transformer valve tooling project was in its final stage, but still awaiting OEM's approval at the end of March. The valve is for use in the power generations sector, the project was awaiting final approval from the OEM, namely Eskom. This has since been received in April 2020. This project will see the foundry locally producing the valve that was previously imported for use in the energy sector.

A scheduled visit in March 2020 to the Eastern Cape was cancelled due to travel restrictions following the COVID-19 outbreak. This visit will be undertaken in the new financial year when the travel restrictions are lifted.

Following the reconfirmation of the original agreement with the University of Johannesburg to supply the outstanding solar PV panels at rural foundries in Mpumalanga, the outstanding panels were procured and scheduled for installation between 19 and 21 March 2020. This installation however, had to be postponed due to the COVID-19 lockdown and a new date will be confirmed once business operations allow.

In addition, the expression of interest process reported on in previous quarters was finalised and five new projects have been identified through the EOI process for implementation:

Foundry	Nature of project	OEM / foundry client
1. Boschpick Engineering, KZN	Wheel Drive Housing - drive system used for railway and underground mining cars.	Joy Mining Equipment
2. Dinky Manufacturing, Eastern Cape (SMME, Aluminium Die Casting, jobbing foundry located in Berlin, East London with about 30 employees)	EIQ lightning base - water resistant control box used for security on equipment in mines.	Centurion Security Solutions
3. Elmacast, Gauteng	Truck 5th wheel for transport/ automotive, expansion to tap into truck market	JOST South Africa

4. High Duty Casting, Gauteng	Pressure plates for vehicles	Schaeffler Group
5. Pressure Die Castings, KZN	Alternator Bracket: aluminium components used for general engineering and automotive industry for engine assembly.	Ford South Africa

By the end of March when lockdown began, the purchase orders had not yet been issued, but it is anticipated that the supplier can be appointed as soon as work commences. Contracts between the service provider and CSIR are already signed. The total value of the support projects is R 1.6 million.

RECP Assessments

Resource efficient and cleaner production (RECP) interventions by NCP- SA were undertaken at five foundries. An initial “quick scan” to assess the basic needs and scope of work were conducted in five foundries. Following the appointment of specialists that could assess the detailed opportunities in the areas identified by the quick scans, energy, water and environmental assessments were carried out in four foundries, with two assessments in one of the companies where a larger need was identified. The Quantum foundry has asked for the work to commence later.

The results of the assessments can be summarised as follows:

	Town/city	Potential value of resource savings	Investment required	Resources identified
Active Foundry cc	Germiston	R 504 847.00	R 396 860.00	Energy consumption
High Duty Castings – Energy assessment	Boksburg	R 1 617 809.00	R 1 552 300.00	Energy consumption
Alcutech (Pty) Ltd	Boksburg	R 917 902.00	R 3 237 672.00	Energy, water, input material
High Duty Castings – environmental assessment	Boksburg	R 1 253 853.00	R 2 567 300.00	Water and solid waste
Prevail Engineering (Pty) Ltd	Meyerton	R 1 381 145.00	R 214 282.00	Energy consumption, water, input materials
		R 5 675 556.00	R 7 968 414.00	

The quick scan at Quantum was completed and it is hoped the foundry will be able to accommodate a full assessment after work resumes.

6 TECHNICAL AND REGULATORY SUPPORT TO INDUSTRY

This focus area entails facilitating collaboration with relevant institutions and government support programmes to offer sound technical and regulatory support to industry through provision of assistance with environmental compliance interventions and accreditation measures.

6.1 QMS 9001: 2015

A significant part of this work is focused on supporting the foundries to obtain ISO 9001 through a QMS process. In the first year of support, the NFTN will typically provide an assessment of the foundry to identify areas of implementation and then provide various support to assist the foundry to implement a QMS. In year two, the NFTN typically assists the foundry to undergo the certification process and, where possible, helps the foundry to address the shortcomings in its processes. Twelve foundries are currently being supported in various stages of the QMS:

QMS certification

In the year under review, six (6) foundries, namely Alcutech, Fabcast, Jay-Bee, Jeorg, KCS and Proco, were supported with QMS certification. All six foundries are now certified with ISO 9000:2015 standard. Since ISO 9001 is a requirement for access to many markets, such as OEMs and exports, this certification will increase the opportunities for the foundries to compete.

Olde World foundry has not made any further progress since the identification of 30 non-conformance records and the foundry is citing manpower challenges in addressing the non-conformance. The NFTN engaged the foundry and found that the foundry's relocation challenge has a spill-over effect on the progress of the QMS intervention. The intervention is delayed and milestone is beyond the control of the NFTN.

Southern Cross foundry has also not made progress in terms of the certification stage due to the technology transfer. The planned visit to engage and visually assess the foundry was postponed due to the travel restrictions as a result of COVID-19 outbreak. A follow up will be made and status shared in the new financial year.

The collaboration with TLIU to support JC Impellers, Quantum and WO Foundry with QMS is still ongoing. As mentioned before it has been difficult to update on the progress as the role of NFTN was only to facilitate. The NFTN will continue requesting update and share the feedback as soon as it becomes available.

QMS implementation

An ISO 9001:2015 QMS implementation process has begun at three (3) foundries, namely Cyclops, Nicast and Viking. Stage 1 of the process, namely the kick-off meeting, had taken place at all three foundries when workplaces closed in mid-March.

A project to support the implementation of the *IATF 16494* QMS, which is the automotive compliance certification, has kicked off at Prevail foundry. Whilst implementation was anticipated for Q4, there were unfortunately delays in the signing process between the two parties, and implementation will commence once the company has returned to full operations, although the exact timing is outside of the NFTN's control.

6.2 Pressure Equipment Directive (PED)

Pressure Equipment Directive (PED) is an EU directive which sets out the standards for the design and fabrication of pressure equipment. This compliance will allow the foundries the opportunity to compete in the oil and gas markets, where such products are typically imported.

As with the QMS, the NFTN support to foundries takes two phases – the implementation and the certification. This year marked the very first foundries in South Africa to be certified with the PED, a milestone for the potential export of local components.

PED certification

The PED certification stage at three (3) foundries, namely KEW, Rely-Intracast and Vestcast has been completed. These are the first foundries certified to the PED standard in the country following the support of the NFTN and now they are ready to supply into the market.

PED implementation

The PED implementation at Yellow Star is ongoing. Phase 2, which is a gap analysis audit, has been completed. Phase 3, namely the evaluation of PED processes and sub process of the QMS against the PED standard is delayed due to the SANAS accreditation of materials and is anticipated to be completed in 2020/2021 financial year.

6.3 AEL Facilitation

The S24G rectification process was supported at Duvha and Cyclops Engineering foundry to avert foundry closure since the foundries do not have an air emissions license (AEL). Phase 3 which is public participation was completed and the service provider engagement with the authority is still ongoing. An update on the progress will be shared in Q1 of the new financial year. The alternative option of

assisting the foundries through section 22A is being explored with the service provider and how to overcome penalties that must be calculated from 2016 at R200 000 per year.

The health hazard analysis on spent foundry sand was completed following the request by the Department of Environment, Forestry and Fisheries (DEFF) to enable it to make an informed decision on the classification of spent foundry sand. The report is currently with DEFF awaiting the outcome.

Following a recent EMCO decision, the NFTN will provide details of engagements to date, so that the Green Industry unit can ask for DDG intervention to address any bottlenecks in the DEFF approval. The NFTN will continue to pursue this matter as it is of critical importance to the competitiveness of the foundry industry.

7 SKILLS DEVELOPMENT

The two remaining students who are part of the Effsafound project have finalised their theses and their MSc degrees were granted. The service provider of the Effsafound project was approached, to arrange with the beneficiaries to present the outcome of the project to the NFTN. Initially this was agreed for end of March 2020 before the COVID-19 lockdown. A new date will be communicated as soon as the travel restriction are lifted. In the interim, the report has been requested to be sent to the NFTN.

The NFTN has historically collaborated with various organisations to identify and address skills gaps in the foundry industry. During the year under review, the NFTN was asked to undertake an analysis of the scarce and critical skills in the sector.

Under the collaboration with NCPC-SA to support skills development, a report was developed based on the scarce and critical skills identified by the relevant SETA. The report identified list of skills that needs to be explored and recommended the advisory body approach to advise on the required skills relevant to the industry. This is an on-going process and requires some strategic decisions before action is taken.

Gauteng Foundry Training Centre (GFTC)

To support the core foundry skills such as pattern making, mould design and smelting, the NFTN has collaborated with the Gauteng Foundry Technical Centre (GFTC) as the only approved institution to conduct trade tests in foundry related skills and to train students in this field. The smelter trade test

scheduled for assessment for accreditation in March 2020 was postponed due to the absence of the assessor. The new date will be communicated as soon as it is confirmed by the GFTC.

This support has been evident in two areas, namely the provision of funding for the installation of specialised foundry equipment (donated by Atlantis Foundry); and the provision of funding for the purchasing of consumables to support the learning of artisans enrolled at the college.

The installation of the foundry equipment was completed during the year and a visual inspection has verified that the pattern shop is operational. This equipment allows the GFTC, as the only institution in South Africa accredited by the QCTO to offer the trade test in foundry industry skills.

Thirty-four students have enrolled for pattern and mould making course in the year under review. Each course is divided into 18 months theory and 18 months practical. 17 students enrolled for pattern making and the other 17 enrolled for mould making are busy with their first year and the NFTN continues to fund the purchase of support materials for these trainees.

8 STAKEHOLDER ENGAGEMENT AND STRATEGIC PROJECTS

8.1 Strategic Projects

Following the approval of the project by EMCO, a service provider was appointed to undertake an industry study to understand the level of environmental compliance of the sector. The survey integrated the needs of other stakeholders and posed a set of questions to foundries which allowed a first-hand understanding of the challenges facing the sector.

Preliminary desktop and telephone research identified 133 foundries countrywide. By March 2020, a total of 72 foundries had been visited and additional 11 visits had to be cancelled due to the COVID-19 lockdown. The data gathered has been compiled into a report, the first draft of which has since been presented to and discussed by EMCO in April and May 2020.

A service provider was appointed in February 2020 to undertake the NFTN 10-year impact review. Whilst some interviews have taken place, the process has been hampered by the national lockdown.

8.2 Stakeholder engagement

The NFTN continues to play a pivotal role in the foundry industry by raising awareness with key stakeholders on the importance and value of the casting industry. The partnership with the Innovation Hub was signed and finalised. Projects for mutual benefit will commence in the new financial year.

The NFTN began the process of formalising a partnership with the **CMRDI in Egypt**, following the successful visit in May 2019 by **the dti** officials. After this visit Prof Adel former CMRDI president visited South Africa and led a technical forum on best practices for casting cast Iron metals. During his stay in the country, he also visited High Alloy Castings foundry and assisted in resolving casting challenges the foundry was experiencing. The arrangement with Prof Adel will include a strategic partnership for human resource development (training); as well exploring the possible establishment of an African Foundry Network. A partnership with Prof Adel to support the foundry industry is ongoing but delayed by the Covid-19 pandemic that negatively affected global travel. In addition to Prof Adel, other specialists for nonferrous and stainless steel are being recruited to cover the wider spectrum of the foundry sector.

As the member country of the World Foundry Organization (WFO) and the only member on the continent, the NFTN participated in the 2019 GMTN show hosted in Germany from 25 – 30 June. In addition, the NFTN was included on the exhibition pavilion of the WFO and formed part of the technical forum for professional development of the foundry skills. The technical forum ensures alignment and standardisation of the professional development and tap into other WFO member countries on the progress made so far on improving the profession within the foundry sector

The NFTN participated in the 59th Slovenian technical forum hosted in Portoroz in this financial year. A new Management of Foundry Association was formed of which the NFTN is a member. The main objective is to help associations to raise their game by identifying and developing best practice and enabling the sharing of information and experience among members. An outcome of the Management of Foundry Association led to the development of online foundry training that is currently being finalised. Details on the training will be shared in the new financial year.

As part of the WFO's Management of Foundry Associations, a portal is being developed for online training of foundry related skills. More details on this will be shared as soon as the portal is online.

9 COMMUNICATION AND AWARENESS-RAISING

9.1 Events

The NFTN participated in nine events this year, including the two international exhibitions/conferences and the foundry workshop hosted in September 2019 at the 4th NCPC-SA Industrial Efficiency Conference. The workshop, which took place on Day 1 of the two-day conference, on 10 September attracted over 60 delegates and featured international specialist, Prof Adel Nofal.

In other events, the NFTN exhibited at the Manufacturing Indaba in Gauteng, and the roadshows in Eastern Cape, Western Cape, and KwaZulu Natal. Industry decision makers and technical staff attended the Manufacturing Indaba conferences and exhibition. The NFTN also exhibited at the first Local Southern African Manufacturing Expo hosted at Nasrec in Gauteng in May. Unfortunately, the Africa Rail exhibition was sold out by the time enquiries were made.

A summary of the events for the year is reflected in the table below:

Date	Name of event	Region	Presentations given	Event count
21-23 May	Local Southern African Manufacturing Expo	Gauteng		1
25 - 26 June	Manufacturing Indaba	Gauteng	Isidore Kilongozi: "Technical aspects towards achieving the competitiveness of the Metal Casting Industry in South Africa". Exhibition stand	1
25 – 29 June	GIFA International Foundry Trade Fair with Technical Forum	Düsseldorf, Germany	Various interactions, meetings and engagement by Project Leader	1
14-15 August	Manufacturing Indaba KZN	KZN		1
18 – 20 September	59 th Slovenian Technical Forum	Portoroz	NFTN attended as a member country and formed part of new management of foundry association	1
10-11 September 2020	4 th Industrial Efficiency Conference & Foundry Sector Workshop	Gauteng	Dedicated foundry workshop with multiple presentations. Exhibition stand.	1
3 - 4 October	Manufacturing Indaba Eastern Cape	Eastern Cape		1
6 November	Manufacturing Indaba Western Cape	Western Cape		1
Total number of events (KPAs)				8

9.2 Media engagement

It is the aim of the new media and communications team to become more active in local media. This is a process that takes time, but some progress was made, as the foundry workshop was mentioned often in conference media stories.

The NFTN also secured a feature in Business Day Empowerment and Engineering News. Advertising efforts commenced again this year, with NFTN adverts being placed in Engineering News, Cape Business News castings sector feature and, most recently, in the March/April edition of Castings SA.

The following table is a summary of all articles picked up by media monitoring that mention the NFTN:

Date	Publication	Headline	Source
13 June 2019	Engineering News	Programme to revive local foundries	Print
14 June 2019	Engineering News	Programme to revive local foundries	https://www.engineeringnews.co.za/article/revival-of-local-foundries-sector-in-motion-2019-06-14/rep_id:4136
01 Sept 2019	Business Day Empowerment	Taking Foundries into the future	Print
03 Sept 2019	Engineering News	NCPC-SA to host free-for-business greener industries conference	https://www.engineeringnews.co.za/article/ncpc-sa-to-host-free-for-business-greener-industries-conference-2019-09-03
09 Sept 2019	ESI Africa	DTI and CSIR collaborate on growing greener industries	https://www.esi-africa.com/industry-sectors/energy-efficiency/dti-and-csir-collaborate-on-growing-greener-industries/

9.3 NFTN website and other tools

Work was also done to update and migrate the website, which is now back to its registered domain, www.nftn.co.za. The content review process commenced in Q3 and the restructuring, and changing the look and feel of the website is in progress. The website updates will be completed in the new financial year, due to unexpected delays as a result of security and software updates behind the firewall.

To ensure the platform remains relevant and is interactive, a twitter feed will be included on the site and videos on the NFTN YouTube platform will also feature. There will also be space for partner news to ensure we drive traffic to the site.

Progress is being made with the NFTN branding, and the exhibition stand, PowerPoint presentation and brochure were all updated. The communication strategy planned for this financial year was not implemented and deferred to the new financial year.

10 KEY PERFORMANCE AREAS – PERFORMANCE AGAINST TARGETS

Table 2 – Progress against KPIs

Key Performance Area (KPA)	Outcome	KPI #	Outputs	Evidence	Annual Target	Actual Achievement	Target Met?	Var	Comments
1. Foundry capacity building	Foundries, and particularly foundries at risk, throughout the country assisted to assess and improve their operations in the areas of product quality, process innovations, advanced technologies, increased productivity, resource efficiency and cleaner production. Leading to sustainable, capable businesses at the core of the manufacturing value chain.	1.1	Engage foundries and conduct assessments to establish needs for RECP interventions. Number of assessments undertaken at foundries.	Assessment reports	5	4	Yes	1	RECP assessment conducted in all foundries (Alcutech, Active, High Duty, Prevail). Quantum requested postponement.
		1.2	Implement productivity, process, product, tooling and technology interventions in foundries based on needs analysis of assessments. Number of implementation projects at foundries supported.	Intervention or implementation report	2	2	Yes	0	Implemented interventions at Nicast & Jay-Bee. Fabcast was supported but not completely implemented this year but awaiting OEM's approval. (See page 5)
2. Technical and regulatory support to industry	Providing support to foundries to assist them to meet various compliance standards as well as specifications and standards of clients (OEMs), government and trade opportunities – leading to companies that can increase their business in the local and international value chain.	2.1	Support foundries to enrol for QMS, PED or similar implementation, and application for AEL	MOAs or contracts to provide implementation support	4	5	Yes	+1	QMS implemented at Cyclops, Nicast, Viking and PED at Yellow Star. AEL rectification at Duvha and Cyclops foundry
		2.2*	QMS, PED or similar certification support at foundry / plant level	QMS/PED auditor appointed	7	9	Yes	+2	Six foundries certified to ISO9001:2015 (Alcutech, Fabcast, KCS, Proco, Joerg & Jay-Bee). Three foundries (*KEW, *Rely & Vestcast) were certified with PED.

Key Performance Area (KPA)	Outcome	KPI #	Outputs	Evidence	Annual Target	Actual Achievement	Target Met?	Var	Comments
3. Human capital development, skills, and knowledge transfer	Foundry staff are equipped with supplementary skills to address the skills gap within the foundry industry	3.1	Assess the training needs of the sector and facilitate the adoption of requisite courses.	Scarce skills list and report on proposed course registration or adoption.	1	0	0	0	Report was drafted to be submitted Q1
	An accessible, accredited facility and relevant training material that are available to train young artisans to meet the skills gaps in foundries.	3.2	Facilitation of activities to allow GFTC to upgrade / develop learning material	Contract for completion of learning material between GFTC and CSIR	1	1	1	0	Contract in place
		3.3*	Facilitation of activities to upgrade facilities and equipment at GFTC to required specifications.	Final report and visual inspection of upgraded equipment	1	1	1	0	Inspection completed and facility is operational.
		3.4	Supporting the provision of consumable training resources to facilitate artisan training of students at GFTC.	Progress reports and copies of invoices for training consumables provided	2	2	2	0	Training consumable material supported and proof of invoices supplied.
4. Stakeholder relations, awareness raising and communications	An increased awareness of the NFTN and its services. A growing awareness of the importance of and the challenges facing the foundry industry.	4.1	Host events and workshops, or showcasing of NFTN at broader industry events.	Table of events with dates and participation level.	8	8	8	0	List of events provided. See 9.1
		4.2	Generation of media articles and / or interviews to highlight the work of the NFTN	Media article, advert or interview file	10	5	5	-5	List of media articles provided for NFTN (See 9.2) In addition, five (5) adverts were placed.
		4.3	Formalisation of strategic partnerships	MOAs or similar agreement of partnership	1	1	1	0	Partnership MOA signed with TIHMC to support innovative interventions to foundries.
5. Information and data gathering	Data / information gathered on the NFTN and the foundry sector that will assist to inform policy and support provided to the sector through the NFTN and other government channels.	5.1	Impact assessment conducted on NFTN for past ten years	Independent assessment report. NFTN / NCPC-SA way forward	1	0	0	-1	Implementation date delayed but in progress
		5.2	Industry-wide sector review on environmental compliance status	Phase 1 and 2 reports as per TOR	2	1	1	-1	Phase 1 report submitted as per milestones. Preliminary findings shared with EMCO. Phase 2 to follow in new FY