Executive Summary

REPUBLIC OF SOUTH AFRICA

Human Resources Development Council

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Introduction

The South African Maritime Safety Authority (SAMSA), an Agency of Government, is pursuing a growth strategy that prioritises the development and retention of quality critical and scarce skills within the maritime sector. SAMSA, the South African Navy and the maritime industry including the private sector, are most important partners for skills development in the maritime sector.

The maritime sector includes all enterprises engaged in the business of designing, constructing, manufacturing, acquiring, operating, supplying, repairing and/or maintaining vessels, or component parts thereof; the management and/or operating of shipping lines; stevedoring, arrastre and customs brokerage services; the management and operation of shipyards, dry docks, harbours, marinas, slipways and marine repair shops; shipping and freight forwarding services and similar enterprises. In addition to shipping transport and ports services, maritime related enterprises and activities are also concerned with resource exploitation at sea, the leisure and tourism industries, professional business services and the public service.

The bringing together of Higher Education Institutions (HET), Further Education and Training (FET) Colleges and the Sector Education and Training Authorities (SETAs) into a single Ministry of Higher Education and Training provides a powerful basis for addressing skills development in an integrated way.

This skills study was conducted at the same point in time as the legislative landscape in the skills development arena was changing and to some extent is intended to inform the effective coalescing of the new policy and institutional environment.

Deloitte was appointed by the South African Maritime Safety Authority (SAMSA) to conduct the Maritime Industry Skills Study, which would contribute to SAMSA’s informed efforts to strategically position the maritime industry as a key economic sector.

In terms of the South African context within which the maritime sector finds itself, a number of social conditions endorse the pertinence of commissioning a maritime skills study at this time. South Africa finds itself within the following skills development space currently:

- The recommitment of government to its developmental mandate of prioritising social development in economic growth;
- The policy review process that culminated in the launch of the most thorough and binding version of the National Skills Development Strategy in 2010;
- The institutional reform process of the skills system initiated under the new Department of Higher Education and Training (DHET);
- The increasing focus on maritime in South Africa as a sector with significant growth potential; and
- A global maritime sector skills crisis with maritime nations of the authoritative BIMCO/ISF Manpower Study (1990; with updates in 1995, 2000 and 2005), which was published at the end of 2010.

The Ministry has the responsibility to develop the country’s education and training institutional capacity and resources into a coherent but diverse and differentiated post school learning system, serving adults and youth within the framework of the HRD-SA.
Purpose of the study

The terms of reference underpinning this study, highlight five broad study objectives, namely:

- **Study objective 1:** Conduct a review of the maritime sector in South Africa;
- **Study objective 2:** Explore trends in the supply and demand of maritime skills globally and consider opportunities for South Africa in light of global trends;
- **Study objective 3:** Explore policies, funding mechanisms and partnerships that relate to skills development in the South African maritime sector;
- **Study objective 4:** Determine the number and types of skills available in South Africa and supply and demand dynamics surrounding South African maritime skills; and
- **Study objective 5:** Determine skills offering and skills development gaps in South Africa.

To meet the objectives of the study, three methodological approaches were used to inform the study objectives and triangulate data findings. These approaches include extensive desktop review and analysis of literature available locally and globally; the analysis of secondary data available through complementary research efforts and outputs; and the analysis of primary data generated through surveys and in-depth interviews with key stakeholders and organisations across the sector.

Limitations to the study

The collation of findings on demand side data across industries has been provided to the extent that the data is available. Enormous effort went into determining skills supply and demand data and study findings indicate that industries generally do not have up-to-date numbers on skills supply and demand, with no consolidated database existing across industries in the maritime sector. Where data is available, it is fragmented and found either within various SETA's, with SAMSA or private organisations leading industries. Available data has been collated during this study and is presented in this report. Skills supply and demand side dynamics are qualitative in nature where quantitative data is not available.

Findings

**A review of the maritime sector**

There have been no prior in-depth sector skills studies conducted in the maritime sector in South Africa that have attempted to operationally define the maritime sector value chain. With the intent of aligning this sector skills study with the national skills development agenda, as well exploring economic growth and job creation opportunities more widely along the maritime value chain, a South African maritime sector model was developed that incorporates all identifiable segments of South Africa’s maritime sector.

Based on the data emerging from this research study, the maritime sector has been divided into seven clusters, representing sub-sectors of the maritime sector. The maritime sector model distinguishes between three primary and four secondary industry clusters. The three primary industry clusters include all those maritime industries that represent the economic foundation of the sector: (1) shipping and transport, which is broken down into maritime logistics infrastructure, shipping transport and ports, marine services and coastal administration; (2) marine resources, which is broken down into fisheries, pharmaceuticals and aquaculture; and as well as offshore energy and mining; and (3) marine tourism, which is broken down into boating and cruising, sports and recreation and leisure.

From the local literature review it was found that of all the industries within the Maritime Sector in South Africa, Commercial Fishing has substantially more detailed economic and sectoral study findings available than could be found for the other industries.

The four secondary industry clusters include (1) operational support services, which is broken down into shipping logistics and marine technologies; (2) manufacturing and construction which is broken down into marine civil engineering; (3) business services, which look at maritime specialised professionals within the banking and consulting domain; and (4) the public interest cluster, which considers public maritime functions and services (maritime regulatory and naval defence).

A comprehensive skills development strategy for the maritime sector would need to incorporate skills development requirements in all seven clusters. The three primary industries are each equally important for growth of South Africa’s maritime sector. This study has revealed the need for additional research focused on each of the primary industries to better understand the skills supply and demand dynamics and accurately determine the number of skills required so as to better inform the maritime skills development strategy.

A key finding is that all primary industry clusters (shipping; resources and leisure) serve global industries and there is a need for the skills development model to align local training and certification requirements with international standards. For each industry the key challenge is the gap in middle-management and supervisory skills and each industry has emphasised the gap between schooling / formal training structures and what is being demanded in the workplace.

In terms of collating accurate statistics, data within each industry and across all industries is scattered, with no central database with a set of standard reporting requirements. SETA information can currently not be verified. The difficulty in obtaining accurate numbers for skills within the maritime sector is indicative of the need to do proper data collection and centralise data with defined standards.

Trends in the supply and demand of maritime skills globally and their implications for South Africa

Global desktop research covered both seafaring and non-seafaring skills. However, limitations exist in the data available globally for non-seafaring skills.

Shipping is a key industry within the maritime sector and it is this industry that underpins the international economy. Despite its pivotal contribution, of all the sectors that make up the global transport infrastructure, shipping has arguably the lowest public profile and the least representative public image (IMO, 2006).

A number of trends and key issues can be identified globally across international maritime skills studies. These include (i) the global shortfall of seafarers; exacerbated by (ii) the increasing aggregate age of maritime professionals; and (iii) the difficulties in retaining skills within the maritime sector; as well as (iv) the decreasing numbers of recruits to the sector; (v) limited management skills; (vi) the poor quality of shipping services delivered by personnel with no seafaring experience; and (vii) the impact of technological innovation.

Solutions implemented by maritime nations in response to global trends and challenges include: (i) launching maritime awareness campaigns; (ii) creating and nurturing international partnerships between maritime training institutions and industries; (iii) devising various employee retention strategies; (iv) centralising the management of national and regional maritime sector skills information; (v) offering tax benefits and financial incentives to not only grow the national maritime sector, but to increase the direct participation of the industry in skills development efforts.

South Africa is positioned to exploit emerging shifts in the patterns of global shipping. The nation’s ports benefit from a prime location on the growing south-south trade route. In addition the increasing shipping traffic may be augmented by rerouting from other shipping lanes, as capacity constraints up the global transport infrastructure, shipping has arguably the lowest public profile and the least representative public image (IMO, 2006). Despite its pivotal contribution, of all the sectors that make up the global transport infrastructure, shipping has arguably the lowest public profile and the least representative public image (IMO, 2006).

Changes in shipping traffic and the global maritime skills deficit both present opportunities for South Africa, such as: (i) growing shipping related services by improving ports productivity, cargo-handling operations, and professional support services; (ii) prioritising and incentivising additional maritime sector growth, through strategies such as cabotage; (iii) becoming a seafarer supply nation, with a specific focus on officers, by incrementally increasing the capacity and output of the skills development system; (iv) becoming a regional supplier of seafarer training; (v) creating a competitive advantage by centralising and significantly improving the management of national and regional maritime sector skills information. The possibilities for exploiting the global maritime skills deficit are enhanced by the fact that South Africa is an English-speaking nation and our officer training is widely regarded as being of high quality.
Determing the number and types of skills available in South Africa and supply and demand dynamics surrounding the South African maritime sector

This report provides a detailed matrix of maritime education and training institutions in the country. The data offers a good basis for designing a more comprehensive South African Maritime Education and Training (MET) Provider database.

This report further provides an indication of the types of skills and occupations as well as estimate numbers within each industry of the maritime sector.

It is noted that the database will need to be continually upgraded as the sector grows and other similar databases should be identified, sourced and used to improve the database.

The supply and demand skills survey conducted during this study identified the following:

• There are a total of 314 qualifications registered with various quality assurance bodies in South Africa. That offers access to various types of training institutions. Based on the inclusion of non-seafarer occupations as a focus of this skills study, these macro-sectors are applicable to the maritime sector. The distribution of the maritime applicable qualifications by level of relevance includes 200 maritime-related qualifications, 71 maritime related qualifications and 43 maritime specific qualifications.

• Findings relating to skills across maritime industries in South Africa suggest that in terms of technical skills there is an explicit ability deficit that needs to be addressed. It is not only the absence of training options but the quality of training that leads to capacity deficits. The mismatch between the available pool of employees and the market demand for specific qualifications and competencies - the foundation of South Africa’s skills crisis - has been attributed to a number of causes, one of the most prominent being the state of the education system. The lack of correlation between training institution curricula and employability has been attributed in part to the lack or incompleteness of information on the demand and supply dynamics of the labour market, as well as poor collaboration between the private enterprise and the education sector in determining optimal content for curricula.

• Supply and demand was determined for seafaring courses accredited by SAMSA. There are 5,480 qualified officers registered with SAMSA in South Africa. The industries report a total shortage of 1,008 officers. The Transport, Storage & Communications Industries’ large sample survey reported that the total employment in the Sea and Coastal Water Transport segment of the Transport industry amounted to 3,043 jobs including contract workers (StatsSA, 2006). The significant difference between the official statistics on employment in the cluster and the SAMSA numbers on qualified officers and ratings highlights the urgency to revise the manner in which national measures are applied to the maritime sector.

• Across the 14 institutions offering seafaring courses accredited by SAMSA, there are 23 recognised courses. Among them, 13 courses are certification, an average (calculated over a 4 year period) of 244 new officers graduate from the theoretical training received from accredited cadet programmes of S1/S2 training annually. In addition, an average (calculated over a 4 year period) of 104 existing officers complete their theoretical component for their senior officer certification annually. However, interview respondents indicate that of the approximately 120 cadets completing S1 and S2 at our public training institutions on average each year, typically one quarter to a third would find a berth for the following year. Under these conditions South Africa could only produce 35 to 40 junior officers per annum. Considering the officer shortage being reported by industry this number is woefully inadequate.

• It is estimated that the total employment within the South African Maritime Sector is 116,364.

Legal and policy frameworks governing the maritime sector and impediments thereof

The International Maritime Organisation (IMO) and the Internal Labour Organisation (ILO) are the key institutions determining the global policy and regulatory environment governing the international maritime sector. The manner in which the safety, environmental and labour rights agreements are locally enforced has a significant influence on South Africa’s status and prospects as a maritime nation.

There are three regional policy and institutional arrangements that apply to the maritime industry, namely, (i) the SADC Protocol on Transport, Communications and Meteorology; (ii) the African Maritime Transport Charter; and (iii) NEPAD. Inclusion of the African Maritime Charter in the South African Maritime regulatory framework will speed up its enforcement, resulting in the implementation of development initiatives the Charter provides for and the realisation of associated benefits such as job opportunities for women and youth, including unemployed matriculants, graduates and rural youth. Locally, South Africa has a number of policy frameworks and programmes in support of skills development, most prominently (i) the New Growth Path, which is gaining traction; it takes the (ii) the NIPF and IPAF into account; and will influence the content of (iii) future iterations of government’s Programme of Action. In addition the (iv) National Skills Development Strategy mobilises Departments and Agencies in a common endeavour to ensure that skills supply will meet the demands that experts to meet the rigorous demands of new products and innovation and technological developments. In addition the skills needed for high level composite technical work are lacking. As far as manpower is required to build a ship, the majority of skills required are artisans - primarily in the boilermaking, pipe fitting, fitting and welding trades. There is a specific need for theoretical knowledge applicable to marine vessels and marine engineering so that persons can become familiar with the type of work necessary to build and repair a ship.

• Similar to offshore oil and gas, the shipbuilding industry could not provide numbers on skills demand.

The lack of a specific maritime sector policy hampers planning, including skills development planning.

A lack of co-ordinated accreditation and quality assurance for maritime skills training.

Delays in the adoption of the Integrated Transport Sector B-BBEE Charter have also delayed the implementation of associated skills development provisions.

The South African tax regime does not as yet offer shipping a favourable operating environment and is widely regarded as the major impediment to reviving the South African Ships Register.

Unresolved conflicts between local and international labour legislation including:

• The fact that the Employment Equity Act contradicts international conditions of employment.

• The fact that the Merchant Shipping Act overrides the Basic Conditions of Employment Act and this factor inhibits the opportunity for learnerships to students who cannot then obtain a berth, which is a pre-requisite to become a qualified seafarer.
The establishment of skills development partnerships

Various funding opportunities for skills development are highlighted in this study. SAMSA's strategy is aligned with the special emphasis that the DHET has placed on strengthening the skills and human resource base in South Africa. Consequently, SAMSA should be in a position to access the formal funding arrangements that the national skills development system provides.

The NSF needs to make a substantial contribution to enable growth and job creation. However, there is a need to market the maritime industry and create awareness of the critical skills needs to be funded before the NSF considers contributing through funding. In the same light, all Agencies that provide funding need to be aware of the skills needs that exist in the maritime sector. SAMSA may want to identify those funding agencies that are likely to support maritime sector skills development interests and target them with a focussed marketing and fund raising strategy.

This approach to raising funds for skills development can be adopted at provincial and local levels. Localised PPPs should be equipped and encouraged to leverage the maximum possible funding from various funding agencies for the local development of maritime sector skills. SAMSA might be the institution to assume the facilitating role, together with local development agencies for the local development of maritime sector skills.

The footprint of the maritime sector is such that a wide diversity of scarce and critical skills are required, while the nature of the SETA system is such that the responsibility for maritime skills development is incidentally fragmented across numerous SETAs, including but not limited to TETA, The Foodbev SETA, Agriseta, Services SETA, MERSETA and the MQA. Although a partnership between relevant SETAs will go some way to addressing the enormous challenges confronting the disjuncture between the SETA system and the maritime sector's skills development needs, it is unlikely that the current skills development system will be able to service the sector without significant reform, including the introduction of a maritime specific skills development authority.

A strong emphasis should be placed on developing regional partnerships that include African maritime authorities, training institutions and governments. Not only would this align with and facilitate the exploitation of potential benefits to South Africa identified by this study, but also offer benefits to other nations across the region by focussing efforts on developing the regional market for maritime services.

Potential international partners should be engaged and relationships nurtured continually, not only when funding is provided. Strategic partnerships should be developed so that South Africa’s maritime sector stakeholders and local partners can understand international requirements and identify international opportunities. International partners should include the IMO, ILO, the EU and international maritime authorities.

Determining skills offering and skills development gaps in South Africa

Since this study will ultimately lead to re-positioning the maritime industry, findings are presented by means of a SWOT analysis that places the themes and information shared by stakeholders into strengths, weaknesses, opportunities and threats for the industry currently. The SWOT analysis can be summarised as follows:

- **Strengths** include the high quality of theoretical training provided for seafarers; services provided in the off-shore oil, gas and mining industry; the advantage of South Africa being an English-speaking and multi-cultural nation; and favourable exchange rates making South Africans competitive for global placement in the maritime sector.

- **Opportunities** include inter alia the global demand for seafarers; the challenges in transit costs in the Suez Canal and piracy – which are influencing ships to pass the Cape of Good Hope; the opportunity for South Africa to grow our coastal shipping industry and improve ports services.

- **Weaknesses** identified that create a current threat to the maritime industry include unfavourable legislation; South Africa’s limited ability to provide training berths for learners aboard ships; limited research and benchmarking informing the future direction of the sector; a lack of consolidated national maritime database; and numerous challenges pertaining to training. These include limited type of training offered; lack of training facilities; lack of high calibre teachers with no incentives to attract them; lack of on-the-job training and management skills.

- **Threats** have been identified, namely, (i) those that hamper South Africa to become a global maritime nation and (ii) those that hamper the growth of the maritime sector within South Africa. Threats that hamper South Africa to become a global maritime nation include the perception and experience of poor quality of maritime services in South Africa; South Africa not being cost competitive in the shipping industry; and insufficient shore-side infrastructure. Threats that hamper the growth of the maritime sector within South Africa include the cost of training with lack of subsidies; limited investment by government in the industry; the aging workforce and limited skills transfer; hampering institutional arrangements due to the industry being fragmented; low maritime awareness; limited partnerships and career pathing being unclear.
Conclusion and recommendations

This research study has identified what is required to build the maritime economy of the country with regards to its skills pool. The findings from this study identified various challenges within the maritime sector. Of significant value to this study is the Maritime Sector Skills Development Model, which provides an indication of the maritime footprint within South Africa. Exploratory research has provided an understanding of the maritime sector footprint, which did not exist before this study. Numbers presented for maritime industries are indicative as they provide an initial first impression of each industry.

Attributes to ensure effective re-positioning of the maritime sector as a leading maritime nation include the following:

• Collaborative efforts between stakeholders across the industry;
• Strategic partnerships;
• Ensuring buy-in and action from relevant drivers within the industry;
• Understanding successes and shortfalls and strengthening feedback loops;
• Information that is up-to-date, relevant and accessible to the industry;
• Good communication to raise awareness and market service offerings, as well as effective service offerings.
• A comprehensive talent development and funding model and implementation plan;
Recommendations

Implementation of a Maritime Skills Development Strategy should be guided by a long range Maritime Skills Development Plan based on sound analytics of data collected via continued research, monitoring and evaluation (M&E) and quality management processes, resulting in a sustainable Maritime Talent Development Model. The development of a competent skills pool, job creation and employment, should be the focus.

As a next step, it is imperative that SAMSA focus on collating a database of every company within the maritime sector in South Africa. Once a directory exists of the entire population of organisations within the maritime sector (something that does not exist but is required to determine accurate numbers for the sector), a survey could be sent out annually to gain an accurate sense of actual real-time skills shortages for each industry within the maritime sector. Only once the entire population of organisations are identified within the maritime sector, can a representative sample of companies be selected for an annual survey. An annual maritime sector survey that is based on a representative sampling frame could determine current skills shortages, would provide an accurate reflection of the skills gaps within the maritime sector; current and projected revenue for the sector; and accurate and reliable growth strategies that a Maritime Sector Skills Development Strategy could prioritise to grow South Africa into a leading maritime nation globally.

A Maritime Sector Skills Plan that links to the Talent Development Model should inform a Maritime Skills Development Strategy. It will be critical to determine whether scarce and critical skills should be bought, developed or redeployed to meet the vision of growing South Africa into a leading maritime nation globally.

The Maritime Skills Development Strategy should be steered by SAMSA in collaboration with strategic public private partnerships including stakeholders from government (including other Department of Transport agencies), industry, Sector Education and Training Authorities (SETAs), education and training providers as well as regional and global stakeholders. Seven pillars of the Strategy should include (1) a Maritime Talent Development Model, (2) a Maritime Competency Framework, (3) an informed Sector Skills Plan, (4) a sustainable Funding Model, (5) strategic Public Private Partnerships that include all maritime clusters, (6) Public and Private Training Provision (7) a Sustainable Talent Pool and (8) absorption of skills.

Recommended priority focus areas to inform South Africa’s maritime skills development strategy should include the following:

- Creating and nurturing local and international partnerships.
- Conducting maritime awareness campaigns.
- Developing maritime retention strategies.
- Ensuring maritime qualifications meet international convention standards.
- Benchmarking against leading global maritime nations.
- Increase recruitment and training.
- Develop a national maritime database.
- Introduce government training subsidies.
- Introduce a Maritime Levy Fund to assist in developing skills for the industry.
- Introduce tax benefits.
- Introduce tonnage tax.
- Review policy with regards to HIV/Aids.

This skills study has lead to the planting of a seed that needs to be watered. It is recommended that the momentum be maintained by building on the primary findings presented from this study, putting in place dedicated resources to drive the improvement of SAMSA’s authority, roles and responsibilities in the aim of closing the gaps identified through this study.

It is recommended that Government invest in the following key focal priorities:

- A skills development strategy is required for the maritime sector. Government is urged to investigate the most appropriate model for skills development in the sector. It will be beneficial to develop a skills development strategic plan utilising the broadened footprint of the maritime sector value chain presented as a result of this study.
- Implementation of a Maritime Skills Development Strategy should be guided by a long range Maritime Skills Development Plan based on sound analysis of data collected via continued research, M&E and quality management processes, resulting in a sustainable Maritime Talent Development Model. The main benefit of Maritime Talent Development Model developed via a collaborative approach involving all stakeholders, is that short and long term skills planning can be done using a predictive model to evaluate skills demand versus skills supply.
- It is furthermore recommended that SAMSA follow a collaborative process involving all relevant and key stakeholders including SETAs residing over Maritime clusters in order to establish a comprehensive Maritime Competency Framework. Such a framework should be benchmarked globally and form the basis for the development of the South African Maritime QFO and relevant qualifications. A thorough well planned process will result in a standardised framework for all future skills development planning for the maritime sector.
- Vital to the success of the process should be a rigorous and targeted communication strategy inclusive of a Maritime Marketing Campaign. It is necessary to engage with stakeholders in each maritime industry in-depth to determine how to promote maritime services which our country can offer internationally.
- To promote maritime skills locally, a Maritime Career Awareness Campaign is required.
- The maritime sector is an international environment. For South Africa’s maritime sector to grow, the South African maritime sector must create a social / educational environment that is aligned to the international convention standards and a legal environment that is attractive to international maritime nations. The current challenge for maritime industries does not seem to be the need for additional numbers of skilled people rather than the need for skilled people capable of providing a quality service. Improving the quality of basic and tertiary education will be critical to minimise the gap that exists between the trained population and the requirement in the workplace. A focus on producing quality will impact on growth of the maritime sector by attracting business to the sector and thereby creating more job opportunities. It is necessary for Government to embark on data collection and engagement with stakeholders specialising within each industry to understand the skills needs of each industry within the maritime sector. Identifying best practice for each maritime industry in terms of training the requisite quality for the local and global industry and ensuring that local training requirements are aligned to global standards, is critical to grow South Africa as a maritime nation.
- Invest in the development of a central database (linkages platform) that defines data collection requirements. The benefit of a central database is the ability to accurately describe skills supply and demand, the opportunity to utilise skills/resources across different industries within and outside the maritime sector and the accessibility to skills and resources for training and employment on an as-needed basis.