



LABOR MARKET INTELLIGENCE REPORT

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LABOR MARKET INTELLIGENCE REPORT

Blue Careers in a Blue Future:

*Enhancing the Skills and Competencies Needed
in Key Sectors of the Blue Economy*

Executive Summary

Currently, there is a global trend towards adopting sustainable economic practices, and moving away from conventional methods. Consequently, the Blue Economy Concept has emerged as a result of this. First introduced in the 2012 United Nations Conference on Sustainable Development (RIO +20) as stemming from the Green Economy, it has now developed as its own concept. Primarily anchored on the Sustainable Development Goal No. 14 "Life Below Water", it embraces the fundamental concepts of social equity, gender equality, maximizing marine habitat benefits for developing countries, promoting national fairness, and economic growth, and generating job opportunities for all. Global players such as China, America, European Union and most recently the Association of Southeast Asian Nations (ASEAN) has implemented its own respective Blue Economy strategic plans and frameworks.

The Philippines, known for its extensive coastline and abundant marine resources, supports many residents whose livelihoods rely on the oceans and seas, stands as a country that will benefit from the Blue Economy concept. As a member of ASEAN, the country has already implemented some of its "blue" economic initiatives. One of which is the publication of the "National State of Oceans and Coasts 2018: Blue Economy Growth of Philippines" by the Department of Environment and Natural Resources (DENR) and Partnerships in Environmental Management for the Seas of East Asia (PEMSEA). This document provides a closer look at the value of the Philippine ocean economy, health and status of our coastal and marine resources, and the socioeconomic importance of these resources. It also highlights the country's key sectors that largely contribute to its economic growth and development.

As the country continues its programs, proper development and training regarding ocean sustainability and conservation skills to its workforce can assist in bridging the gap arising from new job opportunities. Several recommendations have been made on how TESDA can provide the necessary skills and competencies needed by the workforce.

I. Understanding the Blue Economy

The World Wide Fund for Nature (WWF) estimates that coastal and oceanic environments are worth US\$2.5 trillion annually, and the United Nations Environment Programme (UNEP) estimates that areas within 100 kilometers of the coastline account for more than 60% of the world's total gross national product. The oceans play an important role in global supply systems, with 90 percent of goods traveling by sea. Global seafood revenue exceeds US\$190 billion, while marine and coastal tourism generates US\$161 billion per year. Because the ocean is so important to the world economy, there has been a push for proper rules on how to use its resources in a way that is sustainable. These rules have been set by different economic sectors and policies. Thus, **Blue Economy** is the term used to describe this kind of system of exploitation and marine environmental preservation.

The United Nations (UN) first introduced the term "*Blue Economy*" at a conference in 2012 and underlined sustainable management based on the understanding that marine ecosystem productivity equates to ocean health. Sustainable fishing, ocean health, wildlife, and pollution reduction are all significant aspects of the Blue Economy. The United Nations reiterates the need for the Blue Economy to "promote economic growth, social inclusion, and the preservation or improvement of livelihoods while at the same time ensuring environmental sustainability of the oceans and coastal areas" (UNRIC, 2022).

More recently, the term blue economy has sometimes been synonymous with the term ocean economy, which includes all the diverse economic activities associated with the oceans, including fishing and marine products, shipping, seaside tourism, marine sports and recreation, desalination, seabed mining, and offshore wind power. The main difference between the Blue Economy and Ocean economy is their distinctive feature of sustainable development.

1.1 Sustainable Development Goals (SDGs)

When discussing the Blue Economy, there should also be a discussion of the United Nations Sustainable Development Goals (SDGs).

Figure 1. The Sustainable Development Goals related to the Blue Economy



Source: United Nations

The Sustainable Development Goals are a global call to action to address a wide variety of global concerns and make the world more sustainable and fair by 2030. These objectives are part of the 2030 Agenda for Sustainable Development, a broad framework for tackling social, economic, and environmental concerns. Each aim targets a distinct area of concern and is linked to the others. Table 1 describes each of the 17 SDGs.

Table 1. United Nations 2030 Sustainable Development Goals

Goal	Title	Description
1	No Poverty	End poverty in all forms
2	Zero Hunger	End hunger, achieve food security and improved nutrition and promote sustainable agriculture
3	Good Health and Well-Being	Ensure healthy lives and promote well-being for all at all ages
4	Quality Education	Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

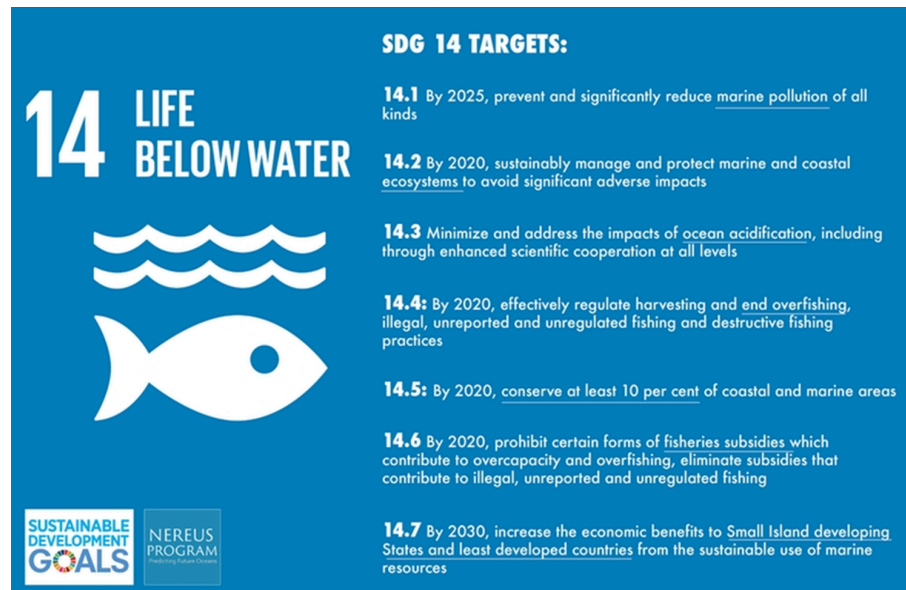
Goal	Title	Description
5	Gender Equality	Achieve gender equality and empower all women and girls
6	Clean Water and Sanitation	Ensure availability and sustainable management of water and sanitation for all
7	Affordable and Clean Energy	Ensure access to affordable, reliable, sustainable and modern energy for all
8	Decent Work and Economic Growth	Promote sustained, inclusive and sustainable economic growth, full and productive employment, and decent work for all
9	Industry; Innovation and Infrastructure	Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation
10	Reduce inequality within and among countries	Reduce inequality within and among countries
11	Sustainable Cities and Communities	Make cities and human settlements inclusive, safe, resilient and sustainable
12	Responsible Consumption and Production	Ensure sustainable consumption and production patterns
13	Climate Action	Take urgent action to combat climate change and its impacts.* * Acknowledging that the United Nations Framework Convention on Climate Change is the primary international, intergovernmental forum for negotiating the global response to climate change
14	<i>Life below Water</i>	<i>Conserve and sustainably use the oceans, seas and marine resources for sustainable development</i>
15	Life on Land	Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification; halt and reverse land

Goal	Title	Description
		degradation; and halt biodiversity loss
16	Peace, Justice, and Strong Institutions	Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels
17	Partnership of the goals	Strengthen the means of implementation and revitalise the global partnership for sustainable development

Source: United Nations Website

When examining each of the SDGs, the Blue Economy is directly linked to SDG 14, **Life Below Water**; other SDGs that is related to the blue economy are SDG 8 (Decent Work and Economic Growth), SDG 1 (No Poverty), and SDG 2 (Zero Hunger) by providing livelihoods and food security through fisheries and aquaculture. The United Nations developed the following targets (Figure 2) to achieve the aim of SDG 14, “conserve and sustainably use the oceans, seas, and marine resources for sustainable development” (UN, 2015).

Figure 2. Sustainable Development Goal 14 Targets



Source: United Nations

As of now, significant advancements have been made towards the ongoing progress towards accomplishing the targets outlined in SDG 14. However, there are corresponding challenges that must be addressed in order to further progress. The *2023 Special Edition SDG Goals Reports* included these challenges among comprehensive assessments of crisis impacts and areas for acceleration. The following are several key points from the report concerning SDG 14:

- The ocean is in a state of emergency due to eutrophication, acidification, warming, and plastic pollution. Overfishing is causing the depletion of over one-third of global fish stocks.
- Progress has been made in expanding marine protected areas, combating illegal fishing, banning subsidies, and supporting small-scale fishers.
- Rapid global action is needed to counter these trends, including increasing funding for ocean science, intensifying conservation efforts, addressing human-induced pressures, and combating climate change.
- Citizen science provides a comprehensive understanding of the significant impact of ocean plastic pollution.
 - *Citizen science initiatives are increasingly being used to measure plastic beach litter density, providing valuable insights into the environmental crisis. With plastic production increasing fourfold in the last 40 years, recycling rates remain below 10%. The rise of mobile phone applications and standardized protocols is enhancing global efforts to address this pressing issue.*
- Coastal eutrophication is posing a significant threat to marine ecosystems and communities.
 - *Coastal eutrophication is the source of nutrient loading and widespread blooms, which deplete oxygen levels, damage marine life, and contaminate seafood. The repercussions of these impacts on tourism, local communities, fisheries, and marine ecosystem health are severe. In 2022, satellite imagery indicates that eutrophication will increase globally, with the Arabian Sea experiencing the highest rates. Human activities are to blame for the rising frequency, length, and extent of blooms; the intricate*

interactions of climate change exacerbate the detrimental effects on coastal communities.

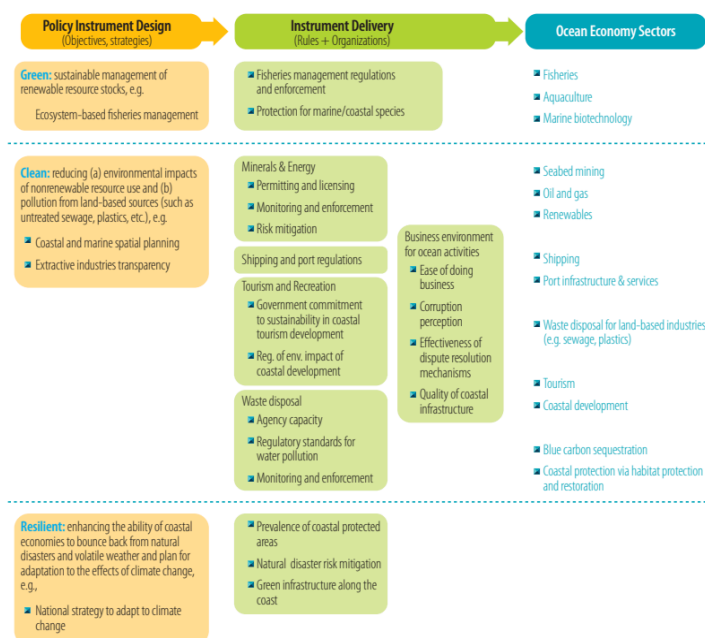
- An expansion of global monitoring is necessary to address the ongoing global ocean acidification crisis.
 - *As a consequence of increasing greenhouse gas emissions, ocean acidification is leading to a reduction in acidity levels within the ocean. This outcome poses a significant threat to the viability of marine life, disturbs food webs, and compromises food security. It erodes corals, littoral defenses, and habitats, as the average pH of the ocean has increased by 30% since pre-industrial times to 8.1. Three times as many stations have reported data on ocean acidification as in open waters, Asia, or Africa, where data gaps still exist. Ocean acidification must be continuously measured and reported on.*
- Illegal fishing, despite progress, requires stronger global cooperation to effectively combat its detrimental effects.
 - *Illegal, unreported, and unregulated (IUU) fishing is a significant threat to marine ecosystems and fishing communities, causing annual losses of 11 to 26 million tons of fish and an economic value of up to \$23 billion. The Agreement on Port State Measures is a key instrument to combat IUU fishing, but more concerted efforts are needed to ensure cooperation, transparency, compliance with international frameworks, strong legislation, and enforcement.*
- Recent marine agreements demonstrate a commitment to ocean protection, aiming to turn the tide on environmental issues and promote sustainable practices.
 - *Recent pacts have emphasized ocean health and conservation efforts. The High Seas Treaty, a historic agreement, protects marine biodiversity in international waters. The World Trade Organization Agreement on Fisheries Subsidies, adopted in June 2022, bans harmful fisheries subsidies contributing to fish stock depletion. The United Nations Ocean Conference in June 2022 saw over 100 member states commit to conserving or protecting 30% of the global ocean within marine protected areas by 2030.*

1.2 Global Blue Economy

Leading up to the 2012 United Nations Conference on Sustainable Development, also known as "Rio+20," the blue economy was raised in connection with the conference theme of "green economy," which emphasized the eradication of poverty and sustained economic growth while preserving the healthy functioning of the Earth's ecosystems, fostering social inclusion, enhancing human welfare, and creating employment and respectable work opportunities for all. This movement changed its perspective on natural systems in economic terms, viewing it as having the potential for a market-based solution to protect them.

According to the The Energy and Resources Institute (TERI) Report, the blue economy concept is built on sustainability and sustainable development. It stresses how important it is to find a balance between environmental protection and economic growth. This can be done by incorporating the long-term use of natural resources into activities that involve the ocean. The figure above (Figure 3) shows how ocean resources, sustainability, and economic growth are interlinked.

Figure 3. Blue Economy Policy Framework



Source: TERI

Among the countries that have adopted the Blue Economy concept is the European Union (EU), composed of 27 member states and comprising 66, 000 km (41, 000 miles) of coastlines. The release of a report on the state of the EU's blue economy is one of the initiatives the EU has taken to achieve the SDG 14 target. The latest edition (Sixth) presents the union's data analysis, trends, and drivers of established sectors. It also analyzes the energy transition in the Blue Economy, GHG emissions, climate change, and coastal impacts, focusing on future flood impacts, adaptation, and ecosystem services along the EU's coastline.

The analysis emphasized the EU's blue economy's resilience and stability in 2020, as well as its continuous expansion through 2022. The EU's GDP was estimated to be 15,810 billion euros at the time, and this figure was backed up by low unemployment, the lowest it had been since 2000, at 6.1% in 2022. The report has identified seven “established” sectors under its Blue Economy: (1) **Living resources**; (2) **Marine Energy**; (3) **Coastal Tourism**; (4) **Maritime Transport**; (5) **Port Activities**; (6) **Non-Living Resources**; (7) **Shipbuilding and Repair**. In 2020, these sectors generated a gross value added (GVA) of **129 Billion Euros** and directly employed almost **3.34 million** people, which was noted to be lower than what was posted in 2019. Factors affecting this drop were the post-pandemic recovery from COVID-19, the Russian invasion of Ukraine, and extended international sanctions on Russian vessels up until 2022.

Despite a decline in employment and GVA, coastal tourism continues to make up the majority of the EU Blue Economy, which also includes maritime transport, port operations, living resources, and shipbuilding and repair. Since marine renewable energy is a relatively new industry with rapid growth, it has potential. It now contributes 0.4% of employment and 2% of GVA (Table 2).

Table 2. Overview of European Union's Blue Economy by Sector, 2009- 2020

Persons employed (thousands)	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Living resources	556.5	555.1	536.1	536.7	520.7	518.5	521.7	529.9	525.2	539.9	550.7	539.4
Non-living resources	34.4	31.6	29.8	30.4	27.7	28.1	27.5	17.9	12.5	11.1	10.1	9.5
Marine energy	0.4	0.6	0.9	1.0	1.2	1.7	4.0	5.1	7.0	8.3	10.6	12.3
Port activities	381.5	372.4	359.4	367.3	363.5	403.3	413.9	418.1	415.6	385.2	382.6	385.6
Shipbuilding and repair	306.8	274.7	263.4	255.5	256.6	258.8	264.1	269.2	274.8	292.8	299.1	305.5
Maritime transport	357.4	354.5	363.1	356.2	356.3	375.8	383.1	367.6	384.6	398.1	403.1	371.6
Coastal tourism	2,816.0	2,595.5	2,285.3	1,939.0	2,033.7	2,029.7	1,960.1	2,187.8	2,366.6	2,839.0	2,846.7	1,717.4
Blue economy jobs	4,453.0	4,184.4	3,838.1	3,486.1	3,559.9	3,616.0	3,574.4	3,795.6	3,986.3	4,474.3	4,502.8	3,341.3
National employment	184,570	182,166	182,277	181,282	180,464	181,981	184,044	186,964	189,678	191,831	193,604	190,062
Blue economy contribution (%)	2.4%	2.3%	2.1%	1.9%	2.0%	2.0%	1.9%	2.0%	2.1%	2.3%	2.3%	1.8%

GVA (€ million)	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Living resources	14,945	15,467	16,033	16,086	15,637	16,082	17,083	18,386	18,431	19,375	19,425	19,378
Non-living resources	11,190	11,325	11,935	11,237	9,684	8,215	8,431	4,723	3,940	4,291	4,704	2,810
Marine energy	41	115	167	189	297	396	723	991	1,299	1,397	1,926	2,145
Port activities	23,201	23,381	26,876	23,957	24,252	25,492	26,431	27,210	27,429	26,577	27,935	26,939
Shipbuilding and repair	11,263	11,815	11,750	10,912	11,060	11,607	11,264	12,383	13,540	14,748	15,650	14,469
Maritime transport	26,913	30,004	27,108	27,419	29,049	28,785	32,476	27,088	31,032	30,123	34,244	29,509
Coastal tourism	66,380	64,713	58,882	50,922	54,711	54,223	56,003	60,283	68,535	79,954	81,513	33,872
Blue economy GVA	153,932	156,820	152,750	140,723	144,691	144,800	152,410	151,064	164,206	176,466	185,396	129,121
National GVA	9,536,725	9,853,556	10,150,557	10,211,897	10,319,741	10,555,397	10,938,710	11,228,272	11,689,383	12,095,625	12,535,146	12,094,906
Blue economy contribution (%)	1.6%	1.6%	1.5%	1.4%	1.4%	1.4%	1.4%	1.3%	1.4%	1.5%	1.5%	1.1%

Source: The EU Blue Economy Report 2023

On the other side of the world, the United States of America (USA) has also adopted some initiatives on the Blue Economy Concept, with the U.S. Department Of Commerce - National Oceanic and Atmospheric Administration (NOAA) publishing various documents, including NOAA 2022-2026: Building a Climate-Ready Nation, where one of its strategic goals is "Accelerate Growth in an Information-Based Blue Economy "(NOAA, 2022). Through NOAA's role as a government authority on ocean and data collectors, product developers, and disseminators, the agency is poised to assist in accelerating the early development of the New Blue Economy by "revolutionizing the application of ocean data within multiple sectors" (NOAA, n.d.). In terms of implementation, NOAA has stated that the agency will provide data, information, and services to boost American competitiveness, accelerate the growth of sustainable ocean industries, and facilitate technological advancements for coastal solutions to climate change.

The United States' approach to the concept of the Blue Economy reflects the country's direction toward capitalizing on its growing potential as more

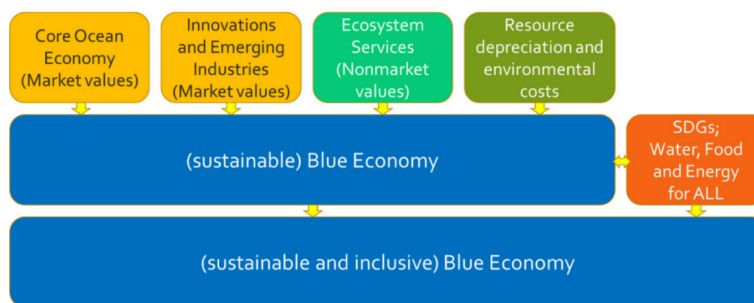
Americans (about 127 million people) live in coastal communities while also contributing about 2.4 million jobs and \$397 billion to the nation's GDP.

In Asia, particularly in East Asia, at the 2012 East Asian Seas (EAS) Congress Ministerial Forum, which conducted "an in-depth discussion on the achievements and limitations of the Sustainable Development Strategy for the Seas of East Asia (SDS-SEA) from the vantage points of central and local governments, enterprises, and international organizations, along with a debate about implementing the SDS-SEA action plans in the next five years" (Korea.net, 2012). The series of discussions culminated in 11 East Asian representative's agreement on the Changwon Declaration, whose primary objective is the creation of a blue economy—a framework for the sustainable growth of the maritime sector. This framework is illustrated in figure 4, which highlights the components being considered in the blue economy assessment.

The full scope of the Blue Economy concept was subdivided into four (4) key components. This is taken from "Blue Economy: Where Are We Now? Where are We Headed?", a publication by the Partnerships in Environmental Management for the Seas of East Asia (PEMSEA). The components are:

1. The blue economy encompasses all economic activities with a direct relationship with the ocean and coastal and marine resources.
2. The blue economy also includes marine education and research, as well as activities of public sector agencies with direct coastal and ocean responsibilities.
3. New activities have also evolved over the past few years.
4. Fourth, the ocean generates economic values and ecosystem services that are not usually quantified.

Figure 4. Sustainable and Inclusive Blue Economy



Sources: *Partnerships in Environmental Management for the Seas of East Asia (PEMSEA)*

Through assessment of each EAS region or country's respective blue economy, it was found that their oceans provide a “source of food, energy, medicines, and recreation; means of transportation and commerce; and source of income and jobs” (PEMSEA, n.d.). Table 3, taken from the same PEMSEA publication, shows the value of some of the EAS members and partner countries' blue economies based on their gross domestic product. It shows that most countries depend on their ocean resources, including coastal and maritime, to various extents: 3.3% in RO Korea, 4.5% in the Philippines, 9.4% in China, and 13% in Indonesia.

Table 3. Ocean Economy and Ecosystem Services based on PEMSEA report

	Indonesia	PR China	Philippines	RO Korea
1. OCEAN ECONOMIC ACTIVITIES	Year 2013 (in billion US\$, at current price)	Year 2014 (in billion US\$ at current price) ^a	Year 2012 (in billion US\$, at constant price)	Year 2010 (in billion US\$, at constant price)
Fisheries and Aquaculture	29.18	68.14	4.55	3.23
Offshore Oil and Gas	40.11	24.29	0.24	
Mining (Minerals)		0.84		
Energy/electric supply (ocean energy; offshore wind, renewables)		1.57	1.31 ^e	
Water (seawater utilization; desalination)		0.22		
Manufacturing	67.43		1.11 ^f	
• Seafood processing				2.31
• Ship building and repair		22.02		15.92
• Marine transport equipment				2.64
• Marine biotechnology, pharmaceuticals, chemicals		19.56 ^b		0.37 ^h
Marine Construction	90.73	33.38	1.13	1.27
Shipping and Ports	3.23	88.29	0.42	
• Marine transportation (shipping)				3.29
• Ports, storage and warehouses				1.75
Marine tourism and recreation	24.85	140.98	not estimated	2.9
Defence/Government (navy, coast guard, etc.)	1.02		0.46	2.81
Marine research and education			1.78	0.41
Marine services (mapping, monitoring, consulting, maritime insurance, etc.)	0.67 ^a		1.62 ^a	0.94
TOTAL (billion USD)	256.55	399.29	12.39	37.82
2. CONTRIBUTION TO GDP (percent)	13% ^a	9.4% ^d	4.49%	3.3%
3. EMPLOYMENT IN OCEAN ECONOMY (million)	5.3	35.5	1.6	
4. ECOSYSTEM SERVICES (US\$)	244.8 M		545.5 M	40.46 to 42.54 B

Sources: *Partnerships in Environmental Management for the Seas of East Asia (PEMSEA)*

The Association of Southeast Asian Nations (ASEAN) has also adopted a blue economy framework, which “affirms the ASEAN commitment to regional cooperation on the blue economy, advancing its priorities to facilitate value creation, resilience, inclusivity, and sustainability” (ASEAN, 2023). Alignment to the United Nation's Transforming Our World: The 2030 Agenda 2030 for Sustainable Development, the Sustainable Development Goals (SDGs), and other international commitments like various World Trade Organization (WTO) agreements were all aligned with the framework, which also included support for the ASEAN Community Vision 2025 and other ongoing work on the ASEAN Carbon Neutrality Strategy and the ASEAN Regional Action Plan for Combating Marine Debris in the ASEAN Member States (2021–2025).

The Framework aims to increase ASEAN Member States' ability to optimize the sustainable use of aquatic environments, promote regional integration and collaboration, and direct ASEAN blue economy efforts. The Framework, which may include a periodical review process, would act as the ASEAN Blue Economy reference document. It is not meant to impose punitive measures or replace current policy processes. Respect for international law includes the UN Charter, the UN Convention on the Law of the Sea (UNCLOS), other pertinent UN conventions and treaties, such as those of the International Maritime Organization, the ASEAN Charter, pertinent ASEAN treaties and agreements, and the common values, norms, and principles of ASEAN.

To be more precise, the framework's goals are to:

- 1. Ensure a cross-sectoral and cross-stakeholder approach, creating a value chain, supporting inclusiveness and ensuring sustainability to make the blue economy a new engine for ASEAN's future economic growth;*
- 2. Develop a common understanding on the blue economy; provide a foundation for regional actions relevant to the blue economy to maximise the economic potential of ASEAN's ocean and inland water resources; and foster collaborative actions and/or cooperation in areas such as marine and coastal ecosystem protection; combatting illegal, unreported, and unregulated fishing; sustainable aquaculture and fishing practices; marine*

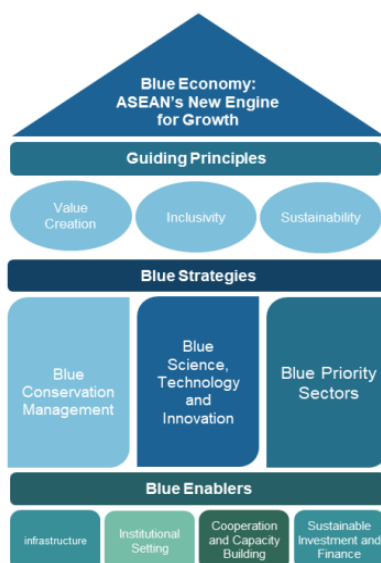
industrial development; food, water, and energy security; trade and connectivity; security and safety of navigation; marine and freshwater science; aquatic based energy; blue governance and management; biotechnology; data statistics and data analytics; livelihood, adaptation to and mitigation of climate change; and innovation, with a view to supporting sustainable economic growth and prosperity; and

3. Serve as a non-binding reference document for continuous engagement and conversations on the blue economy amongst AMS and between ASEAN and its partners (ASEAN, 2023).

To achieve the objectives, the framework, shown in Figure 5, is organized around three areas:

1. Guiding principles for implementation of a blue economy in ASEAN;
2. Blue strategies on which ASEAN Member States should focus; and
3. Enablers that accelerate blue economy development and growth.

Figure 5. ASEAN Blue Economy Framework



Source: ASEAN Secretariat

The ASEAN Blue Economy Framework aims to develop and implement a blue economy, focusing on sustainability and environmental protection.

- Principles 1: Value Creation emphasizes the need to generate economic value while responsibly utilizing ocean and inland water resources.
- Principle 2: Inclusivity emphasizes the importance of ensuring all stakeholders have access to the benefits of sustainable ocean and inland water resource utilization.
- Principles 3: Sustainability encompasses environmental and social sustainability. Environmental sustainability focuses on protecting the marine environment from harmful effects and ecosystem degradation while pursuing blue economy activities. Social sustainability focuses on distributing the benefits of sustainable aquatic resource use equitably and considering the needs of present and future generations.

In the framework, there are three strategies: Blue Conservation Management, Promoting sustainable use of natural resources, and Increasing resilience and strengthening disaster risk management. These strategies aim to align with the goals of the Paris Agreement, prioritize blue and renewable energy development, promote sustainable use of natural resources, and strengthen disaster risk management.

They also optimize resource use, limit wastage, accelerate economic development across ASEAN, and incentivize companies to adopt blue economy principles along value chains. By coordinating national blue economy priority sectors, ASEAN can develop its capacities and contribute to regional blue economy initiatives. The establishment of transparent communication structures, the development of sustainable financing mechanisms, and the stimulation of traditional and emerging sectoral growth are essential for the long-term sustainability of any blue economy activity.

The framework requires the development of modern and efficient physical infrastructure, such as ports, harbors, jetties, and coastal and riverbank protection structures, which improve connectivity, facilitate the movement of goods and services, enhance supply chains, and reduce transaction costs.

Investment in physical infrastructure and capacity-building efforts are crucial for shaping the inclusivity and effectiveness of the blue economy.

The institutional setting, including regional and national law, policy frameworks, governance structure, and institutional mechanisms, is essential for the transition to a blue economy in ASEAN. Effective governance structures and policies bring together stakeholders from different sectors and regions, encouraging collaborative efforts in the blue economy.

The framework also highlights the necessity for a skilled workforce, and capacity-building programs can include technical and vocational training, education, and on-the-job training. These programs can promote innovation, efficiency, and productivity in the blue economy, including training in emerging technologies and soft skills.

Overall, in most countries that have developed some form of “structure” when it comes to their blue economy, sustainability and environmental conservation are part of their core values. There is a need to develop investment and financing mechanisms, such as blue and transition bonds and loans, which can incentivize sustainable resource use, promote marine ecosystem conservation, and support the growth of small and medium-sized enterprises. By channeling funds into projects that prioritize environmental conservation and community development, sustainable financing mechanisms can expedite infrastructure development for the blue economy.

II. The Philippines' Blue Economy Situation

2.1. Overview

With islands accounting for 7,641, the Philippines is considered to be the 2nd largest archipelago in the world. The country has 298,170 sq. km of land area and a total coastline of 37,008 km; it also boasts rich marine resources with its territorial water area of 679,800 sq. km. The Philippines' borders are the Luzon Strait in the north, the Celebes Sea in the south, the Philippine Sea and Pacific Ocean in the east, and the West Philippine Sea in the west.

As of 2023, the Philippines' population is estimated at 118 million, distributed across 18 regions and 81 provinces, with 78% of these in coastal areas, comprising 62% of the population. In 2017, the Philippines had a human development index (HDI) value of 0.699, placing the country in a medium human development category, according to the United Nations. As of 2017, about 97.7% of the urban population and 89.96% of the rural population had access to and used basic drinking water services, but only 52% of the population in 2017 used safely managed sanitation services (DENR, 2018).

The table below shows the summarized information from 2017 and 2018 on the Philippine Demographic and Socioeconomic Indicator related to the Blue Economy. This was taken from the National State of Oceans and Coasts 2018 (NSOC, 2019), developed by the Department of Environment and Natural Resources (DENR) in collaboration with other international agencies such as the United Nations Development Programme (UNDP), the Global Environment Facility (gef) and Partnerships in Environmental Management for the Seas of East Asia (PEMSEA).

Table 4. Demographic and Socioeconomic Indicators related to the Philippine Blue Economy, 2017-2018

Indicator	2017	2018
Land area¹	298,170 square kilometres or km ²	
Coastline¹	37,008 km	
Sea area¹ (territorial waters up to 12 nautical miles)	679,800 km ²	
Population*	104.9 million	
Coastal population*	62% of total population	
Ocean economy* (Gross value added or GVA, in constant prices)	US\$ 11.9 billion (as of 2016, 7% of GDP)	
Employment in ocean economy*	2.16 million (5.3% of total employment in 2016)	
Estimated value of coastal and marine ecosystems**	US\$ 966.6 billion	
Percentage of coastline with ICM***	>20%	
Indicator	2017	2018
Marine protected area*** (percentage of territorial waters)	8.09% ^c	
Ocean health index (OHI) score²	71 - Philippines ranks #83 among 221 EEZs	71 (no change in score and rank from 2017)
Gross domestic product³ (GDP, in constant 2010 US\$ prices)	US\$ 303.4 billion	US\$ 322.3 billion
GDP (using purchasing power parity or PPP), in constant 2011 international \$ prices) ³	US\$ 797.3 billion	US\$ 847.1 billion
Gross national income (GNI)³ (using PPP, in constant 2011 international \$ prices)	US\$ 960.54 billion	US\$ 1.02 trillion
Human development index (HDI), 2017⁴	0.699 medium human development category—positioning the Philippines at 113 out of 189 countries and territories	0.712— high human development category—positioning the Philippines at 106 out of 189 countries and territories.
GNI per capita (at 2011 PPP prices)⁴	US\$ 9,133	US\$ 9,540
Life expectancy at birth⁴	71.0 years	71.1 years
Mean years of schooling⁴	9.4 years	9.4 years
Expected years of schooling⁴	12.7 years	12.7 years
Access to basic drinking water services³	97.7% (of the urban population) 89.96% (of the rural population)	
Access to safely managed drinking water services³	61.47% (of the urban population) 33.68% (of the rural population)	
Access to basic sanitation services³	78.49% (of the urban population) 74.82% (of the rural population)	
Access to safely managed sanitation services³	53.99% (of the urban population) 49.58% (of the rural population)	

Source: National State of Oceans and Coasts (NSOC) 2018, DENR

2.2 Key Sectors

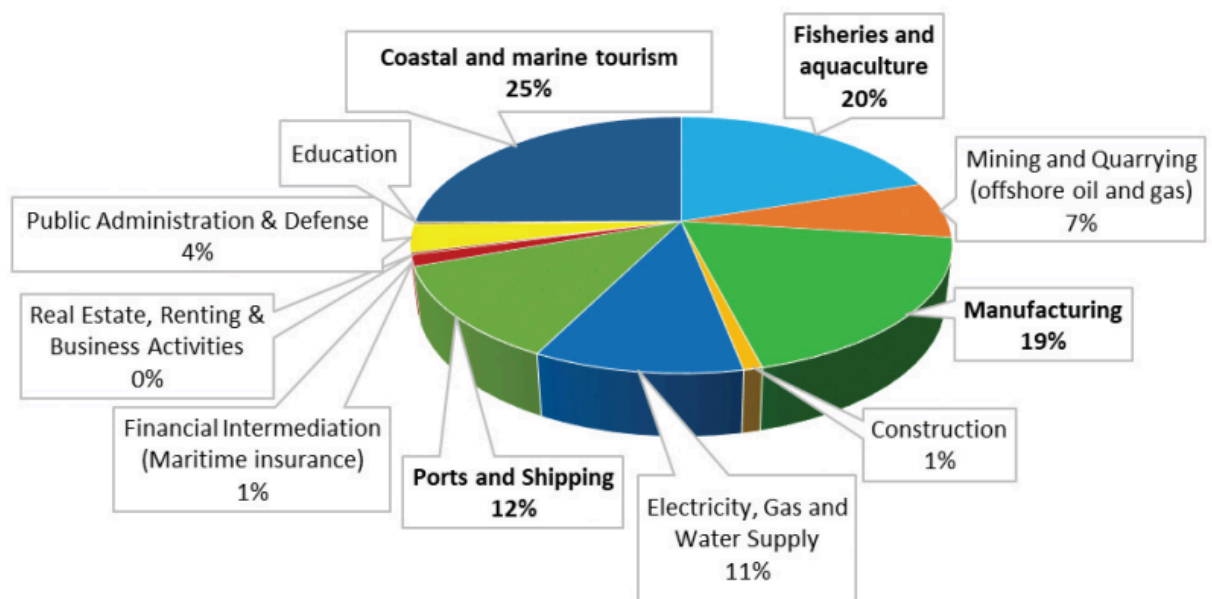
Based on the National State of Oceans and Coasts (NSOC) 2018, the Philippines has three top economic ocean related activities, which are:

- Fisheries and Aquaculture*
- Coastal and Marine Tourism; and*
- Manufacturing Sector*

It should be noted that there are other sub-industry groups that are under the manufacturing sector; they include fish and sea food processing, shipbuilding and ship repair, and marine transport equipment. Other notable industries include offshore oil and gas and renewable energy.

In 2016, the top three (3) activities accounted for about (64%), see figure below) of the overall Gross Value Added of Ocean-based activities totaling to \$ 11.9 Billion.

Figure 6. Percentage Share of Ocean Economic Activities, 2016



Source: *National State of Oceans and Coasts 2018*, DENR

These activities amount to around 2.2 million people employed in ocean industries and 400,00 Filipino seafarers deployed overseas (DENR, 2018).

Fisheries and Aquaculture

Based on a 2021 report on the fisheries industry from the Bureau of Fisheries and Aquatic Resources (BFAR), the Philippines ranked 8th among countries in producing fish, crustaceans, molluscs, and aquatic plants (including seaweed). For aquaculture production (not including aquatic plants). The Philippine

aquaculture production reached about 858.25 thousand metric tons, amounting to about \$2.05 billion.

Between 1980 and 2017, the primary focus of municipal fisheries output has been marine environments. The report highlighted that in 2016, the majority (86%) of municipal capture fisheries production originated from marine waters, while a minority (14%) came from inland waters. The commercial fisheries' production volume was recorded at 941.59 thousand metric tons in 2017, representing a decrease of 0.71 percent compared to the 948.28 thousand metric tons produced in 2018. The sub sector accounted for 21.64 percent of the overall fisheries production.

More recently, the fisheries and aquaculture industries contributed about Php 248.47 billion at current prices and Php 223.52 billion at constant 2018 prices to the 2021 Agricultural Gross Value Added (GVA). With 1.01 million MT, or 23.79% of the total volume of fisheries output in 2021, the Bangsamoro Autonomous Region in Muslim Mindanao (BARMM) recorded the largest production volume among all the regions. Region III (8.68%), MIMAROPA (8.90%), Region VI (8.87%), and Region IX (13.47%) came next.

Coastal and Marine Tourism

A 2021 Asian Development Bank Report estimated that marine tourism makes up 25% of the Philippine blue economy. Under the large umbrella of marine tourism, there are “products” that make up the said sector: Sun and Beach Tourism, Diving and Marine Sports, Cruise Tourism, and Ecotourism.

- ***Sun and Beach Tourism***

The Philippines' 7,000-island archipelago and tropical environment make beach tourism a primary attraction. This “attraction” is evident in the total spending of international tourists between business and leisure travel (table 5). Beach resorts like Boracay, Palawan, Bohol, and Cebu are known for their exceptional beaches and stunning landscapes. However, the administration of these locations has shown unsustainable development practices. An example of this mismanagement is Boracay Island, the country's most popular beach resort,

which earned over \$1 billion in 2017 from 2 million tourists (ADB, 2021). The island faced concerns about cleanliness, environmental degradation, and socio-cultural effects. In 2018, President Duterte ordered Boracay to close for six months for rehabilitation, affecting over 30,000 workers and causing a loss of \$200 million in tourism revenue. Despite the closure, international tourists continued to increase, and the island was redirected to growing areas like Palawan or Bohol. Upon reopening, Boracay was imposed with a daily limit of 6,405 visitors to prevent overcrowding.

Table 5. Inbound Receipts by Type of Trip from 2014 to 2019

Type of Travel	2014	2015	2016	2017	2018	2019
Business	1,062.3	830.5	1,085.1	2,003.3	3,085.3	3,814.3
Leisure	212,671.1	229,623.8	222,145.3	323,554.1	411,599.3	453,920.7

Source: Asian Development Bank

- ***Diving and Marine Sports***

The Philippines, located in the Coral Triangle, is a popular tourist hotspot for diving, featuring prominent locations such as Tubbataha Reefs National Marine Park, Apo Reef, Anilao, and Moalboal. The country was awarded the prestigious 2019 World Travel Award for being the leading dive destination in the world, along with the Amanpulo Resort found in Palawan. The Department of Tourism considers dive tourism as a significant component of its product portfolio, contributing almost PHP500 million in tourism revenue from SCUBA divers in 2017.

- ***Cruise Tourism***

The Philippines is experiencing significant growth in cruise tourism, though it is still trailing behind neighboring countries like Malaysia and Thailand. This growth is reflected in Table 6, which shows the value of Philippine cruise transport sales and highlights the country's potential in developing the cruise tourism infrastructure and market.

Table 6. Philippine Cruise Transport Sales Value from 2014–2019

	2014	2015	2016	2017	2018	2019
Cruise Sales	418.2	436.8	458.3	487.5	549.8	588.8

Source: Asian Development Bank

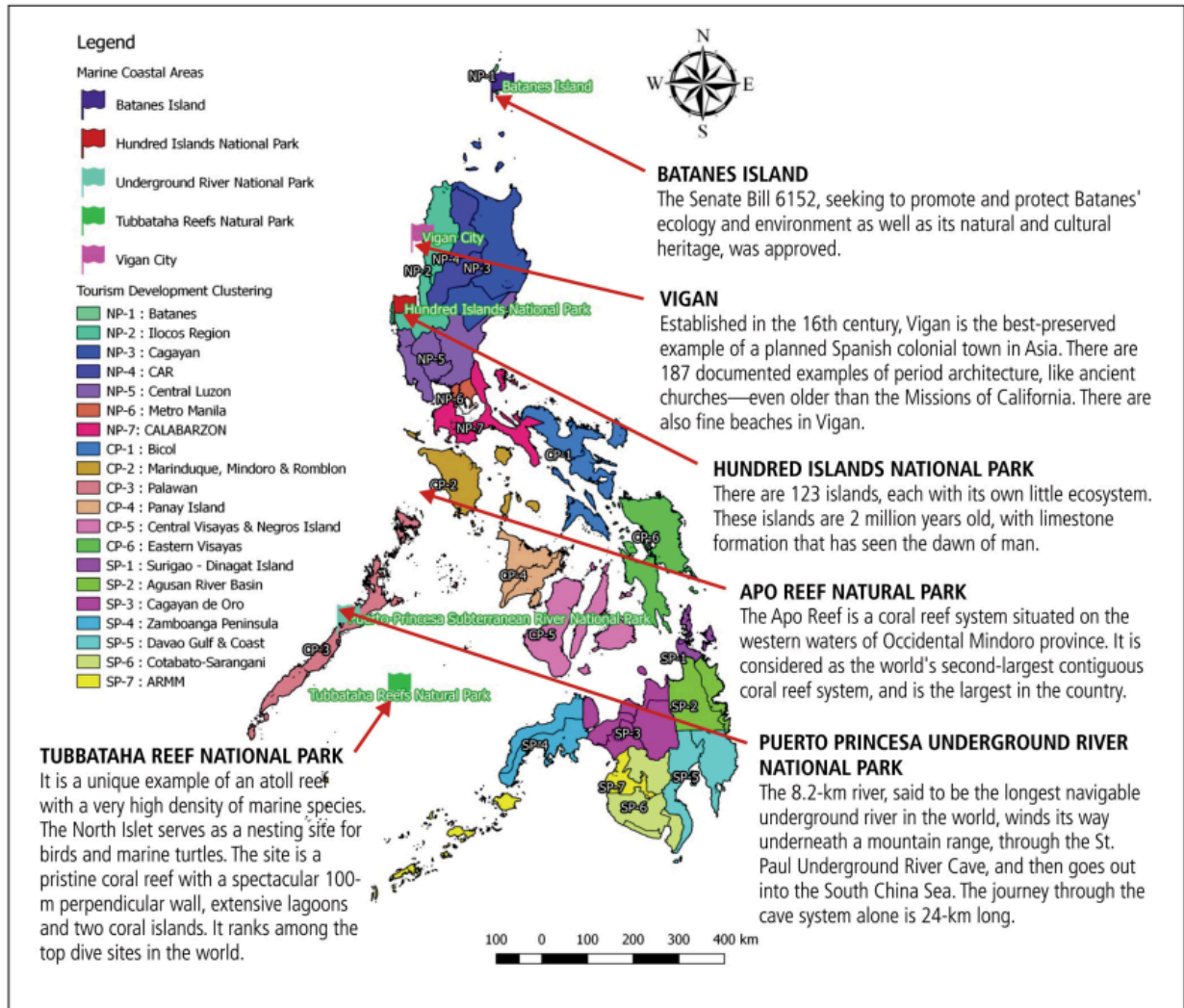
Major cruise lines have only started arriving in the country in the last three to five years. Manila, Boracay, Palawan, Ilocos Norte, and Subic Bay are the five main ports of call, attracting 114,437 cruise passengers in 2017. However, the number of foreign cruise passengers has increased by 1,953% since January 2017. By the end of 2022, the Department of Tourism hopes to receive 656,635 cruise passengers from 300 ports (ADB, 2021).

- **Ecotourism**

Responsible travel and sustainability are the focus of ecotourism, which encourages travelers to visit natural resources and learn about environmental and local culture. In the Philippines, ecotourism, in its blue economy, grew out of the Philippines' mangrove rehabilitation programs, which prevented habitat loss. Various animals and fish depend on mangroves for breeding grounds, habitat, carbon storage, and as a means of preventing soil erosion.

Compared to other tourism "products", ecotourism development in coastal communities has relatively lower costs and is easier to implement, making it a reasonable livelihood and revenue source. These eco-park are generally made up of boardwalks along its mangrove forest, offering guided tours, boating, kayaking, and birdwatching sessions, which not only boosts economic activities but also improve fishing due to increased mangrove cover (ADB, 2021). As a reference, figure 7 shows the specific Coastal and Marine National Parks and Heritage Sites.

Figure 7. Infographic on National Parks and Heritage Sites in Coastal and Marine



Areas as of 2016

Source: National State of Oceans and Coasts, DENR

Manufacturing

As stated before, manufacturing encompasses various industries focusing on processing, operations, and repair. The said sector has about a 19% share of ocean economic activities in the country as of 2016 and provides about \$ 2.256 Billion in gross value added to the overall Philippine GDP.

- **Shipbuilding and Repair (SBSR)**

Part of the manufacturing sector is the ship-building and repair (SBSR) industry. This industry is "a capital-intensive industry" that significantly contributes to the socioeconomic development of a country. It involves enterprises involved in designing, constructing, overhauling, altering, and repairing watercraft. Most of these enterprises operate shipyards or drydocks for ship repair, with a small percentage building ships, especially in large and medium shipyards.

Shipyards are essentially the structures where ships are built or repaired. As of 2022, the Philippines has a total of 124 entities operating shipyards across different regions (see Table 7 and Table 8). Additionally, based on the Maritime Industry Authority (MARINA) statistics, the country has constructed 8 additional shipyards from the 116 shipyards in 2021. In terms of employment in the industry, the bulk of workers are skilled workers (see Figure 8).

The Philippines' infrastructure and workforce for shipbuilding and repair (SBSR) have allowed it to keep its position as the "fourth shipbuilding country in terms of vessel completion in gross tonnage" (NSOC, 2019). This indicates that the shipyards can build ships for export or local usage, although the Philippines still has a ways to go before it catches up to the other top three shipbuilding nations.

Table 7. Number of Operating Shipyards per class, 2022

SBSR Category	Classification	Number	Capacity Limitation
Shipbuilder & Ship Repair (SBSR) under MC No. 2018-02 and MC No. SR-2019-01.	Class A	7	Capable of building and repairing big ships with minimum length of at least 130 meters
	Class B	19	Capable of building and repairing ships with a maximum length of 129 meters
	Class C	98	Capable of building and repairing ships with a maximum length of 80 meters
Total Number of Shipyards		124	

Source: Philippine Shipbuilding and Ship Repair Situation Report 2022

Table 8. Number of Operating Shipyards per class, 2022

MARINA Offices	CLASS A	CLASS B	CLASS C	TOTAL
NCR & Region III (MARINA Central Office)	3	8	33	44
La Union (MRO I & II)	0	1	0	1
Batangas (MRO IV)	2	0	5	7
Legaspi (MRO V)	0	0	2	2
Iloilo (MRO VI)	1	0	7	8
Cebu (MRO VII)	1	5	14	20
Tacloban (MRO VIII)	0	1	0	1
Zamboanga (MRO IX)	0	0	11	11
Cagayan de Oro (MRO X)	0	0	1	1
Davao (MRO XI)	0	0	1	1
General Santos (MRO XII)	0	3	19	22
Surigao (MRO XIII)	0	1	5	6
TOTAL	7	19	98	124

Source: Philippine Shipbuilding and Ship Repair Situation Report 2022

In addition to shipbuilding and ship maintenance, the nation has investment potential in the development of ship recycling yards and facilities due to the aging of the current fleet and the arrival of newer, more modern ships.

Marine Renewable Energy

Renewable Energy, specifically on the utilization of the ocean as a power source, is an emerging industry in the Philippines. To date, there are different types of renewable energy being utilized by the Philippines, and ongoing initiatives have accelerated the development of these types more than their traditional fossil fuel counterparts. In actuality, aggregate domestic oil production, including condensate, declined by 11.5 % in 2017 and natural gas production also dropped by 1.4 % in the same year (NSOC, 2019). This decrease in fossil fuel production is countered by the development and operation of renewable energy technologies such as geothermal, hydropower, biomass, solar, wind, and a fairly new type of technology, ocean energy.

Ocean energy harnesses waves, currents, tides, and thermal energy. Though the technology used is still in its early stages, the country has already identified sites suitable for the development and construction of ocean facilities. Additionally, continuous research and development, as well as pilot projects, are being implemented to demonstrate the feasibility of RE technology.

Coastal and offshore wind and solar power generation are also emerging RE sources, generally using the same technology, and they are located in or near the ocean. The Philippines has included these new technologies in its energy projections, where it plans to harness a total of 2,345 MW from wind and 350 MW from solar (NSOC, 2019). It is important to note that due to the technologies of both ocean, coastal, and offshore energy sources, most are still in the project development and/or construction stages.

III. Relevant Laws and Government Agencies

Numerous governmental organizations are involved in the regulation, implementation, and management of the blue economy's key sectors. Knowing each of these organizations, as well as the laws and regulations that are relevant to the blue economy, is therefore crucial.

3.1. Laws Enacted

Republic Act No. 10654

"Prevent, deter, and eliminate illegal, unreported, and unregulated fishing" is the stated goal of the law, amending Republic Act No. 8550, often known as "The Philippine Fisheries Code of 1998" (RA 10654, 2015). In order to prevent illicit, unreported, and unregulated (IUU) fishing, the new rule mandates improved monitoring methods along with harsher punishments (Oceana, 2017).

Republic Act No. 9147

Otherwise known as the "*Wildlife Resources Conservation and Protection Act*," Essentially the Philippine Government aims to conserve wildlife resources and ecosystems for sustainability. Through this law, the state will also pursue the

protection of animal species and habitats, restrict wildlife collecting and commerce, affirm Philippine commitment to international conservation agreements, and initiate or support scientific investigations on biological diversity conservation.

Specific provisions are included that pertain to the marine ecosystem, one of which is found in Section 19 *"Designation of Management and Scientific Authorities for International Trade in Endangered Species of Wild Fauna and Flora,"* it identified the Bureau of Fisheries and Aquatic Resources (BFAR), the U.P. The Marine Science Institute, U.P. Visayas, Silliman University, and the National Museum as the scientific authorities for marine and aquatic species, as well as any other agency designated by the Department of Agriculture (DA) Secretary (RA 9147, 2001).

Republic Act No. 9593

The law, RA 9593, also referred to as "The Tourism Act of 2009," establishes a national policy that recognises tourism as a catalyst for investment, employment, economic growth, and overall national development. It aims to enhance the capabilities of the Department of Tourism and its affiliated agencies to effectively and efficiently implement this policy. The law also provides the necessary funding for these purposes. (RA 9593, 2009)

The state recognizes tourism as a vital economic driver, promoting sustainable development for socioeconomic growth and cultural affirmation. The policy encourages private sector participation and agritourism for rural development and preservation, aiming to improve the quality of life for Filipinos.

Republic Act No. 10816

The law, RA No. 10816, commonly referred to as the "Farm Tourism Development Act of 2016" (RA 10816, 2016), aims to support and encourage the growth and advancement of Farm Tourism in the Philippines. According to the law, farm tourism is the practise of attracting tourists to agricultural areas for the purposes of production, education, and recreation; boosting the economic and cultural significance of agriculture; supporting communities involved in agriculture and

fishing; and giving farmers, farmworkers, and fishermen extra money all while supporting sustainable practices and good health.

Republic Act 10635

A law called RA No. 10635 sets up the Maritime Industry Authority (MARINA) as the sole maritime administration in charge of enforcing international agreements and covenants related to these issues, as well as the 1978 international convention on standards of training, certification, and watchkeeping for seafarers, as amended (RA 10635, 2014).

Under Section 4 of the law, MARINA will assume all powers and functions of “the Professional Regulation Commission (PRC), the Commission on Higher Education (CHED), the Technical Education and Skills Development Authority (TESDA), the Department of Health (DOH) and the National Telecommunications Commission (NTC) relative to the issuance, validation, verification, correction, revocation or cancellation of certificates of competency, endorsement, proficiency and documentary evidence required of all seafarers and all such other matters pertaining to the implementation of the STCW Convention...” (RA 10635, 2014)

Republic Act No. 9513

RA no. 9513 otherwise known as the “Renewable Energy Act” is an act “Promoting the Development, Utilization and Commercialization of Renewable Energy Resources and for Other Purposes”

These are some of the incentives provided by the law to the renewable energy sector:

- Seven-year income tax holiday and tax exemptions for the carbon credits generated from renewable energy sources;
- A 10% corporate income tax, as against the regular 30%, is also provided once the income tax holiday expires; and
- A 1.5% realty tax cap on original cost of equipment and facilities to produce renewable energy (NSOC, 2019);

Republic Act No. 11285

RA No. 11285, otherwise known as the "Energy Efficiency and Conservation Act", is an act "promoting the development, utilization and commercialization of renewable energy resources and for the other purposes" (RA 11285). The law also establishes a framework that aims to establish and implement policies promoting energy efficiency and conservation, promoting responsible energy use, increasing renewable energy technologies, and outlining responsibilities among government agencies and private entities.

In Section 6, it identified that the the Department of Energy (DOE), Commission on Higher Education (CHED), Department of Science and Technology (DOST), and other training and service agencies shall collaborate with the Technical Education and Skills Development Authority (TESDA) to produce training regulations for energy managers' and energy efficiency and conservation officers' certifications. Through its Technical-Vocational Education and Training Programs, it will make sure that energy-efficient practices and renewable technology are promoted. For mechanics, technicians, installers, and operators of renewable energy and energy-efficient systems, the TESDA will carry out skill development, certification, and evaluation programs.

3.2 Concerned Government Agencies and Related Initiatives

Department of Agriculture - Bureau of Fisheries and Aquatic Resources (BFAR)

The Bureau of Fisheries and Aquatic Resources (BFAR) is the government agency responsible for the development, improvement, management and conservation of the country's fisheries and aquatic resources (BFAR, n.d.). Below are their relevant initiatives for the Blue Economy.

Comprehensive National Fisheries Industry Development Plan 2006-2025

- The Comprehensive National Fisheries Industry Development Plan (CNFIDP) was created from 2006 to 2025 to promote the optimal development and long-term sustainability of Philippine fisheries.

- It also lays out a framework that aims to promote optimal development and long-term sustainability of Philippine fisheries from 2006-2025, focusing on infrastructure development and conservation, with six critical actions to prioritize for sustainable development.
- Municipal Fisherfolk Registration System (FishR)
 - Fish Registration (Fish R) aimed to provide a standardized national registration system for municipal fisherfolk (BFAR, n.d.).
 - It serves as one of the criteria in selecting the Bureau's programs and projects beneficiaries and has been the basis for providing technical, livelihood and other assistance to fisherfolk communities (BFAR, n.d.).
- National Program for Municipal Fishing Vessels and Gears Registration (BoatR)
 - BoatR is a support program of FishR in cooperation with different agencies. It is intended to assist the LGUs to properly manage the projects and programs and eventually establish a Comprehensive Fishery Information System (BFAR, n.d.).

Department of Tourism (DOT)

The Department of Tourism (DOT) is a government agency “mandated to encourage, promote, and develop tourism as a major socio-economic activity to generate foreign currency and local employment and to spread the benefits of tourism to a wider segment of the population with the support, assistance, and cooperation of both the private and public sectors. The DOT assures the safe, convenient, enjoyable stay and travel of foreign and local tourists in the country”(DBM, n.d.). Part of the DOT's function is to develop and implement the National Tourism Development Plan.

- The National Tourism Development Plan 2016-2022
 - The National Tourism Development Plan 2016-2022, a continuation of the 2011-2016 plan, was completed with Asia Pacific Projects,

Inc., and Indra Philippines. It aims to develop a competitive, environmentally sustainable tourism industry with inclusive growth, aligning with the Tourism Act of 2009's policy declaration.

- National Cruise Tourism Development Strategy and Action Plan 2016-2022
 - The Philippine Department of Tourism and USAID developed the National Cruise Tourism Development Strategy and Action Plan 2016–2022, which aims to increase cruise ship calls to ports and islands, improve guest experiences, generate economic benefits, and promote sustainable tourism. The strategy aims to benefit the Philippine economy and its people by presenting a compelling proposition to cruise lines and their guests, aligning with the NTDP 2011-2016 vision of positioning the Philippines as a must-see destination in Asia.

On August 24, 2023, the Technical Education and Skills Development Authority (TESDA) and the Department of Tourism (DOT) signed a Memorandum of Agreement, which aim to develop skilled and competent workforce ready for the demands of the tourism industry, the MOA also seeks to formalize both parties intention to attain the following:

1. Empower local communities by enhancing the employable skills of industry stakeholders through training in specific job opportunities based on the needs or demands of the area/community;
2. Update and/or develop Tourism-related Training Regulations (TRs), Competency Standards (CS), Competency-Based Curricula (CBC) and Competency Assessment Tools (CATs) in accordance to new trends and emerging skills and technologies;
3. Collaborate in the implementation of Enterprise-based Trainings (EBT) or Supervised Industry Learning (SIL); and
4. Collaborate for the implementation and promotion of the different human capital development programs and services of the parties, including the development and capacitating of the pool of trainers and assessors.

Additionally, the MOA has provisions on the creation of the Joint Technical

Working Group (JTWG) which will serve as the mechanism for regular consultation among the parties. The JTWG's actions or decisions stated as recommendatory and shall not, in any way, supersede the function and decision-making function of each of the agencies.

Maritime Industry Authority (MARINA)

With the emergence of various treaties like the International Convention for the Control and Management of Ships Ballast Water and Sediments (BWM Convention), to which the Philippines is a party, and the International Convention on the Control of Harmful Anti-fouling Systems in Ships (AFS Convention), MARINA has implemented a number of initiatives in the maritime industry. Shipyards are also expected to comply with these conventions.

Through MARINA, the government is strictly enforcing the AFS Convention for shipyard construction and repair. However, the challenge lies in formulating rules for the BWM Convention, which affects shipyards and ports, requiring significant costs and additional infrastructure. Non-implementation could increase pollution and invasive species risks to the marine environment.

In 2021, MARINA and the Technical Education and Skills Development Authority signed a Memorandum of Agreement (MOA) which was titled as the “ MARINA Partnership in the Development of Training Programs in Shipbuilding and Ship Repair (SBSR) and other Related Programs in the Maritime Sector. The agreement aimed to:

1. Identify, develop and approve training programs for shipbuilding and ship repair trade areas and other related trade; and
2. Conduct orientation seminars and dissemination campaigns relative to the training programs for the shipbuilding and ship repair sector and other maritime related sectors.

The MOA specifies that it is effective and valid for a period of two (2) years from the date of signing, unless extended or terminated by either of the parties before the end of the term. TESDA was identified as a cooperating agency to

accomplish MARINA's planned programs activities in its Maritime Industry Development Plan 2019-2028, notable activities where MARINA and TESDA an cooperate are:

- Design and Implement capacity building program in collaboration with shipyards and cruise ship lines/ companies
- Development and upgrading of Seafarers foo domestic shipping and fishing operations
- Crafting of Shipbuilding and Ship Repair Development Bill

Department of Energy - Renewable Energy Management Bureau (REMB)

The DOE-REMB is tasked to "formulate and implement policies, plans and programs related to the accelerated development, transformation, utilization and commercialization of renewable energy resources including emerging energy technologies" (DOE, n.d.). Part of the DOE's renewable energy initiatives is the development of the National Renewable Energy Program (NREP).

- National Renewable Energy Program (NREP) 2011-2030
 - The Plan outlines the Republic Act 9513 policy framework, which attempts to accomplish the objectives stated in the Renewable Energy Act of 2008. With the NREP, there will be a major change from dispersed renewable energy projects to a concentrated effort to provide energy security and access to clean energy. Individual work programs for geothermal, hydropower, biomass, wind, solar, and ocean resources are included in the framework. With the aim of raising the nation's renewable energy-based capacity to 15,304 MW by 2030, the NREP sets interim targets for the delivery of renewable energy from 2011 to 2030.

In 2021, TESDA conducted its Standards Setting and Systems Development and Direction Setting Committee (SSSDC-DSC), and the Certified Energy Conservation Officer (CECO) Qualification has been endorsed by the TESDA Board for prioritization for Training Regulation Development. To date, the

development process of the said qualification is in its Competency and Assessment Tools (CATs) Development.

Department of Environment and Natural Resources (DENR)

The Department of Environment and Natural Resources (DENR) is responsible for the formulation and implementation of policies, guidelines, and rules related to environmental management, as well as the management and conservation of the country's natural resources. The DENR also implements rules and regulations governing the exploration, development, extraction, disposition, and use of forests, minerals, wildlife, and other natural resources.

Most recently, the department has published the "National State of Ocean and Coasts 2018: Blue Economy Growth, Philippines" published last 2019. This was in collaboration with the Global Environment Facility (GEF) and United Nations Development Programme (UNDP) and the Partnerships in Environmental Management for the Seas of East Asia (PEMSEA). The aim of the document was to contribute to the overall assessment and monitoring of not only the SDS-SEA implementation, but also the SDGs and other associated international agreements and state policies (NSOC, 2019).

IV. Issues and Challenges

As the Philippines delves even deeper into the proper implementation of sustainability and conservation practices based on the Blue Economy concepts, there have been observable issues and challenges being faced by each key sector in each of the top three (3) sectors.

Fisheries and Aquaculture

The growing issue of food security under the fisheries and aquaculture sector has been its primary challenge to the sector. This is based on the declining trend of caught and growing equity issues with small scale and commercial fisheries (NSOC, 2019).

Based on recent data collections, aquaculture has significantly contributed to the total fisheries production in the country based on a 2017 BFAR report. Though having contributed much, additional issues such as high poverty among the fisher folk, competition of resources, and limited institutional capacity and governance have continuously persisted in the sector.

Coastal and Marine Tourism

While Coastal and Marine Tourism “products” or types may have potential to provide income to communities, there are a number of challenges that may rise in the sector as well.

Sun and beach tourism issues stem from; (1) mismanagement and overcrowding leading to unsustainable tourism; (2) Solid waste and water pollution negatively affect the water quality and marine environments; (3) Illnesses caused by increased levels of bacteria. Other challenges may also include overdevelopment prevention and mobilizing the private sector to invest in the business.

The lack of infrastructure and high expenses associated with scuba diving, namely liveaboard diving, pose a significant obstacle that deters foreign divers from visiting the Philippines. One factor is that prime diving locations are frequently situated in isolated regions, requiring significant travel time to reach these destinations. Furthermore, the expense of scuba diving, particularly liveaboard diving, might pose a significant obstacle for local residents. A liveaboard excursion lasting a week can amount to PhP125,000 (ADB, 2021), which is a considerable sum compared to the average annual income of PhP307,000 for Filipino families (PSA, 2022). Consequently, the increasing popularity of free diving has arisen as a more economically advantageous alternative.

Dive tourism may also cause some negative impacts such as damages or loss of coral mainly due to the sediment stirred by the divers. Another is removal of biodiversity and damming done by boat anchors.

Ecotourism has been observed to have two main challenges, (1) developing enticing tours, and (2) balancing nature conservation. The latter particularly needs to have good management to prevent damages to the ecosystem and loss of its diversity. Although relatively new, the cruise tourism's growth has sighted negative impacts one of which is the congestion stemming from the large influx of simultaneous arrivals; another it may push out local tourists from top attractions in favor of higher-paying cruise passengers. Its biggest challenge is the needed investment to have a port of call infrastructure.

Manufacturing: Ship-Building and Ship Repair (SBSR)

The importation of equipment and materials, such as marine grade steel, presents further obstacles to the development of a modern shipbuilding sector. The NSOC 2018 specifies that in order to comply with safety, environmental, and quality regulations, it is imperative that shipyards upgrade their facilities. Better incentives and financing choices are also needed to encourage shipyards to upgrade their facilities. The report also highlights the absence of technical and skilled labour, and many of these people are moving abroad in search of better pay.

Other Challenges were also identified by MARINA's Philippine Shipbuilding and Ship-Repair Situation Report 2022, these are the outmoded facilities, the continuous importation of ships and the lack of the shipyard's interest in obtaining ISO Certification. The latter may stem from the lack of the shipyard operator's knowledge regarding the purpose of the ISO Certification and its advantages as a marketing tool.

V. Blue Economy Skills

5.1 Employment in the Key Sectors

When identifying the skills needed in the blue economy, one aspect that needs to be checked is the employment history and opportunity for each sector. As stated before the top sectors under the Blue Economy are: (1) Fisheries and Aquaculture; (2) Coastal and Marine Tourism; and (3) *Manufacturing Sector*. In

2017, the employment in the blue economy amounted to about 2.16 million or about 5.3% of total employment in 2016 (NSOC, 2019)

Fisheries and Aquaculture

There are a total of 1, 614, 368 fishing operators based on the 2016 Bureau of Agriculture and Fisheries profile, with municipal fishing operators having the highest followed by aquaculture operators and commercial operators respectively. The food and agriculture organization of the United Nations (FAO) stated that as of 2010 the total number of fishers were 1,907,435, an increase from 2005 which had 1, 421, 715 registered. In addition to the number of registered fishers, there was also a slight increase in the number of fishing vessels, about 6,901.

There is large potential for aquaculture and commercial fisheries as these subsectors are still unutilized thus the need to support, especially in supplying the sub-sector with skilled fishers.

Coastal and Marine Tourism

With a contribution of about 12.2 % to the economy last 2017, the whole tourism sector has had a continuous growth from 2012. Growth in the GDP share had positive effects in the employment sector as the tourism industry in 2017 employed about 3, 735, 000 individuals, representing 70.8 percent of the country's total employment.

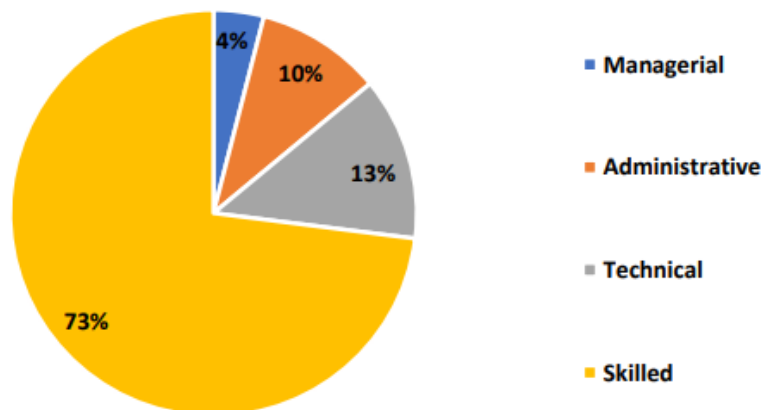
About 898, 273 people were employed in the coastal and marine tourism sector based on recent support. The NSOC also highlighted that ecosystem services from beaches and coral reefs have benefited from international and domestic tourism (NSOC, 2019). The majority of these tourists visit the country's beaches, which are its main tourism attractions. There has been a significant rise in the number of international tourists visiting popular coastal tourism destinations, including Panay Island (Boracay), Palawan (El Nido, Coron, and Puerto Princesa), Bohol, and Cebu. Although there is an increase in arrivals, revenues and employment caused by coastal and maritime tourism, careful management

must be ensured to protect the habitats, resources and water quality as well as the protection of coastal communities that depend on the area for livelihood.

Manufacturing: Ship-Building and Ship Repair (SBSR)

Throughout the past years there has been an increase in shipyard operations which lead to the increase in employment, to be specific, Figure 8 shows the total number of employees in their respective category last 2022.

Figure 8. Employees by Category and Equivalent Skillset



Source: Philippine Shipbuilding and Ship Repair Situation Report 2022

It should be noted that the most workers are skilled workers employed in SBSR such as welders, steel cutters, outfitters, painters, and others. Also, it may seem that due to the growth of SBSR there would also be a need for workers but part of the sector's challenges is that most skilled workers tend to go overseas due to better pay.

Furthermore, MARINA said in its presentation during the National Maritime Week (2020) presentation, the Philippine shipbuilding industry mainly revolves around production of bulk carriers and containerships and ship repair. Whereas bulk carriers and containerships on the other hand that are produced by foreign-owned shipbuilders, are mainly exported. While domestic shipyards

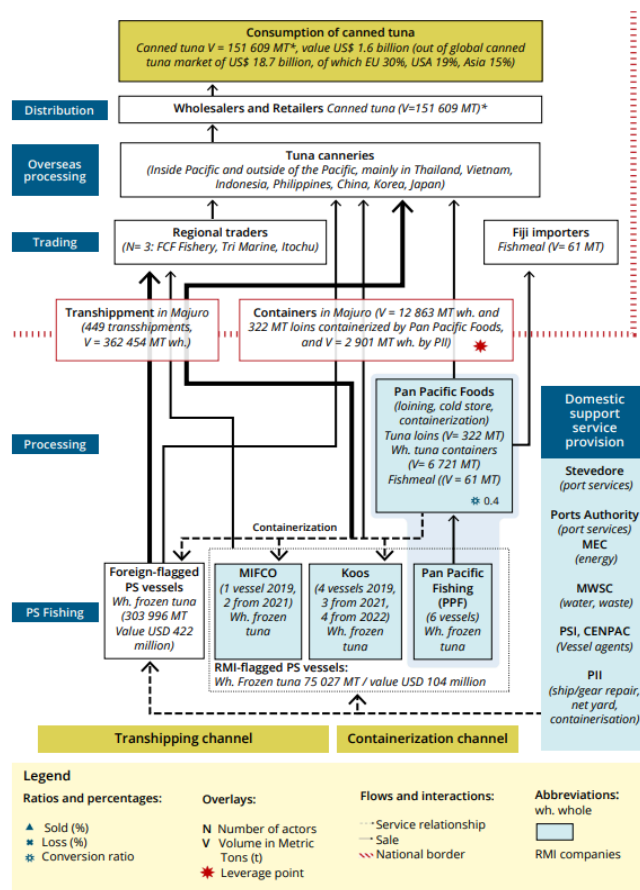
primarily engage in ship repair.

5.2 Key Sector Skills Needs

Based on the top three sectors, their respective issues and challenges as well taking into account the employment profile, the possible skills can be identified that are critical to the blue economy. There should also be an emphasis on sustainability and conservation as it is the core principle to the Blue Economy Concept.

In the Fisheries and Aquaculture Sector, figure 9 shows a sample value chain by the Food and Agriculture Organization of the United Nations (FAO) based on the Marshall Islands Tuna Industry. It shows that the core segments of the value chain are: (1) Production; (2) Processing; (3) Trading; and (4) Distribution.

Figure 9. Fishery Value Chain for the Marshall Islands Tuna Industry



Source: Food and Agriculture Organization of the United Nations (FAO)

This value chain was developed through the FISH4ACP, an EU-Funded initiative which is in partnership with African and Caribbean Countries. Using this as a guide, these are following jobs/skill/qualifications:

Table 9. Fisheries and Aquaculture Skills Map and Equivalent Program Qualifications

Value Chain Segment	Jobs/ Skills/ Qualification	Equivalent Program Qualification
Production	Ultimo	Fish Capture NC I*
	Commercial Fishing Vessel Operator	No Equivalent Qualification
	Commercial Fishermen	No Equivalent Qualification
	Municipal Fishermen	Fish Capture NC II
	Crew Member	No Equivalent Qualification
	Deckhand	No Equivalent Qualification
	Hatchery Technician	Aquaculture (Hatchery Operation) NC II
	Hatchery Farm Worker	Aquaculture (Hatchery Operation) NC II
	Aquaculture Worker	Aquaculture (Grow-out Operation) NC II
	Aquaculture Reproduction Technician	No Equivalent Qualification
	Fishing Gear Mender (Net)	Fishing Gear Repair and Maintenance NC III
	Fish Gear Maker (Net)	Net Construction and Maintenance Level II
	Fish Finder Technician	Fish Finder Equipment Servicing Level III

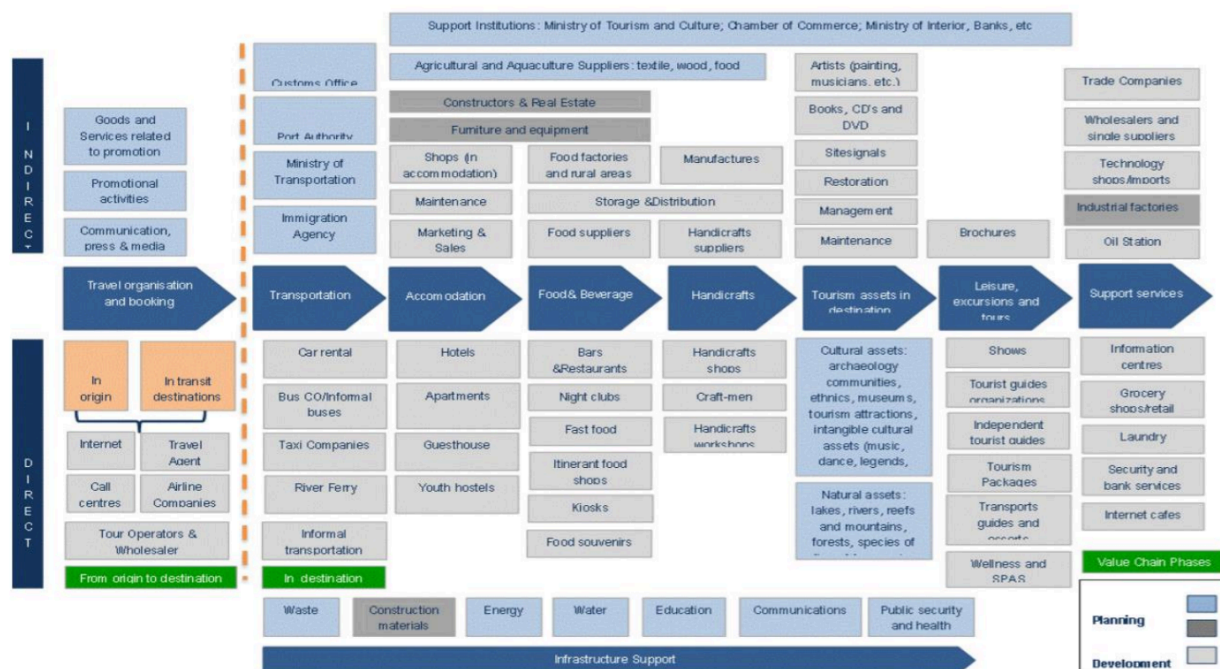
Value Chain Segment	Jobs/ Skills/ Qualification	Equivalent Program Qualification
	Fish Finder Operator	Fish Finder Operation Level III
	Sonar Equipment Operator	Sonar Equipment Servicing Level III
	Tilapia Growers	Aquaculture (Tilapia Culture) NC II
	Seaweed farmer	Seaweeds Production NC II
	Crustacean Culturists (Shrimp and crab)	No Equivalent Qualification
	Shellfish/ Mollusk Culturists (Oyster and mussels)	No Equivalent Qualification
Processing	Fish Product Processor (Dried Fish and Tinapa)	Food Processing NC II
	Fish Product Handler	Fishport/Wharf Operation NC I
	Fish Packaging Worker	Fish Products Packaging NC II
	Fish Processing Machine Operator	No Equivalent Qualification
Trading	Fishmonger	No Equivalent Qualification
	Fish Product Traders	No Equivalent Qualification
Note: <i>* In Section I of Fish Capture NC I states that the qualification consists of competencies that a person must achieve to catch and deliver seafood products.</i>		

The skills mapping shows that there have been promulgated qualifications under fisheries and aquaculture; notably there are no qualifications for skills related to larger fishing operations, like commercial fishing related skills.

Coastal and marine tourism is an industry that is expected to grow in the near future. As such, it is critical to fully utilize its potential to promote robust and sustainable economic development. Using the Tourism Value chain provided by

the European Union report, TESDA can identify the jobs/skills/qualifications needed for each tourism product under the coastal and marine tourism, see figure 10.

Figure 10. Tourism Value Chain Development



Source: Interreg Mediterranean funded by the EU

Under the Leisure, excursion and tours, the type of coastal and marine tourism have specific skills needed based on their operation. With this, Table 10 shows skills needed in the industry.

Table 10. Coastal and Marine Tourism Skills Map and Equivalent Program Qualification

Coastal and Marine Tourism Product	Value Chain Segment	Jobs/ Skills/ Qualification	Equivalent Program Qualification
Sun and Beach Tourism		Beach Resort Experience Manager/Beach Resort Manager	No Equivalent Qualification

Coastal and Marine Tourism Product	Value Chain Segment	Jobs/ Skills/ Qualification	Equivalent Program Qualification
	Leisure, excursion and tours	Beach Recreation Associate	No Equivalent Qualification
		Sea Patrol (Bantay Dagat)	No Equivalent Qualification
		Surf Instructor	No Equivalent Qualification
		Underwater Diving Instructor	No Equivalent Qualification
		Sailing Coach	No Equivalent Qualification
Dive and Marine Sports		Scuba Diver	No Equivalent Qualification
		Driving Instructor	No Equivalent Qualification
		Water Sports Instructor	No Equivalent Qualification
Ecotourism		Wild Animal Care Technician	No Equivalent Qualification
		Park Manager	No Equivalent Qualification
		Wildlife specialist	No Equivalent Qualification
		Conservationist	No Equivalent Qualification
		Environmental specialist	No Equivalent Qualification
Cruise Tourism		Cruise Ship Steward	No Equivalent Qualification

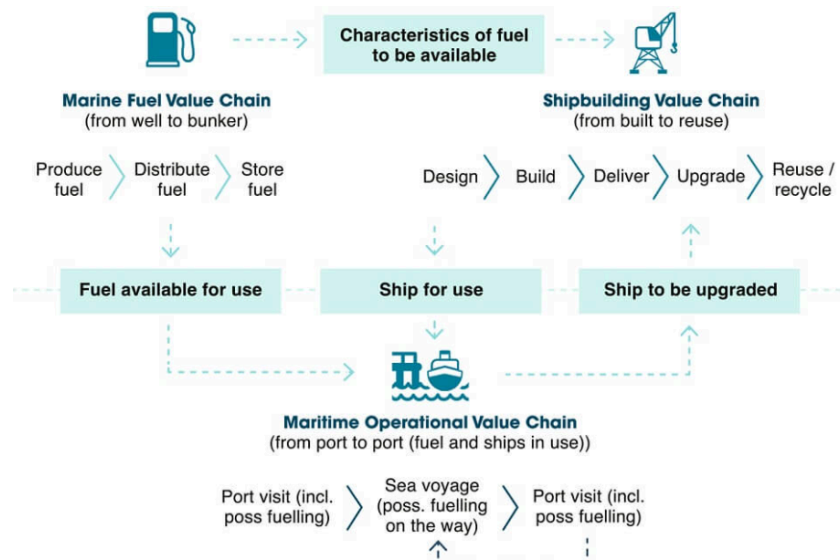
Coastal and Marine Tourism Product	Value Chain Segment	Jobs/ Skills/ Qualification	Equivalent Program Qualification
		Activities coordinator	No Equivalent Qualification
		Ship Cook	Ships' Catering NC III (Ships' Cooks)
		Messman	Ship's Catering Services NC I
		Deckhand	No Equivalent Qualification
		Fitness instructor	No Equivalent Qualification
		Boatswain's mate	No Equivalent Qualification
Cross-Cutting Activities		Sailing Coach	No Equivalent Qualification
Environmental Officer		No Equivalent Qualification	
Safety Officer		No Equivalent Qualification	
Boat Operator		No Equivalent Qualification	
Beach Lifeguards		Lifeguard Services NC III	
Travel Adviser/Consultant		Tourism Promotion Services NC II	
Local Guide		Local Guiding Services NC II	
Travel Counselor		Travel Services NC	

Coastal and Marine Tourism Product	Value Chain Segment	Jobs/ Skills/ Qualification	Equivalent Program Qualification
			II
		Staff Assistant for Tours	Tour Packaging (FIT AD HOC DOMESTIC) Services NC II
		Reservation Agent/Staff	Travel Services NC II

Additional skills and competencies that can be imparted to workers in coastal and marine tourism are environmental conservation and preservation.

The Philippine's Shipbuilding and Ship Repair Industry (SBSR) value chain is interconnected to the overall value chain in the Maritime Industry, see figure 11, from built to reuse, the value chain follows a ships process from design up to reuse/ recycle. It is also important to note that the country's shipyards are largely focused on repairing ships, an activity where the bulk of the country comes from (BusinessWorld, 2018). With this information, the table below shows the specific skills that are needed in the SBSR industry focusing on the reuse/recycle/repair segment of the value chain.

Figure 11. Maritime Ecosystem Value Chain



Source: The Maritime Executive

Table 11. Shipbuilding and Ship Repair (SBSR) and Equivalent Program Qualification

Value Chain Segment	Jobs/ Skills/ Qualification	Equivalent Program Qualification
Reuse/ Recycle/ Repair	Project Supervisors	No equivalent Training Regulation
	Boilermaker	No equivalent Training Regulation
	Carpenter <i>Other titles: Builder, Woodworker</i>	Carpentry NC III
	Heavy Duty Mechanic	No equivalent Training Regulation
	Industrial Electrician	Marine Electricity NC II
	Joiner	Carpentry NC II <i>(has basic joinery skills as a required skill)</i>
	Machinist	Machining NC III
		Machining NC II
		Machining NC I
	Metal Fabrication/Shipfitter	No equivalent Training Regulation
	Millwright	Plant Maintenance NC I
	Painter/Coater	Boat Building (Composite Materials) Level II

Value Chain Segment	Jobs/ Skills/ Qualification	Equivalent Program Qualification
	Painter & Decorator	Construction Painting II <i>(core competencies are similar to that of key responsibilities)</i>
	Pipefitter/Steamfitter	Pipefitting (Metallic) NC II
	Plumber	Plumbing NC I
		Plumbing NC II
		Plumbing NC III
	Sheet Metal Worker	No Equivalent Qualification
	Welder	Flux Cored Arc Welding (FCAW) NC I
		Flux Cored Arc Welding (FCAW) NC II
		Flux Cored Arc Welding (FCAW) NC III
		Gas Metal Arc Welding (GMAW) NC I
		Gas Metal Arc Welding (GMAW) NC II
		Gas Metal Arc Welding (GMAW) NC III
		Gas Tungsten Arc Welding (GTAW) NC II
		Gas Tungsten Arc Welding (GTAW) NC IV
		Gas Welding NC I
		Gas Welding NC II

Value Chain Segment	Jobs/ Skills/ Qualification	Equivalent Program Qualification
		Shielded Metal Arc Welding (SMAW) NC I
		Shielded Metal Arc Welding (SMAW) NC II
		Shielded Metal Arc Welding (SMAW) NC III
		Shielded Metal Arc Welding (SMAW) NC IV
		Submerged Arc Welding (SAW) NC I
		Submerged Arc Welding (SAW) NC II
	Ship Building and Repair - Quality Control Inspectors	No Equivalent Qualification
	Safety Environment Officer	No Equivalent Qualification
	Inboard and Outboard Mechanic	Motorcycle/Small Engine Servicing NC II
	Sandblaster	No Equivalent Qualification
	Electrical and Electronics Engineering Technicians	No Equivalent Qualification
	Mechanical Engineering Technologists and Technicians	No Equivalent Qualification
	Rigger	Rigging NC I
<p>Note:</p> <ul style="list-style-type: none"> - Shipbuilding Welders need to know various welding practices. Common welding used in the industry are arc, gas and resistance welding (Sec Industrial, n.d.) - Specific to the Blue economy concept, Ship Building and Repair - Quality Control Inspectors and Safety Environment Officer are jobs specific to check and identify hazards to health, safety and the environment. 		

For the Renewable Energy, such as offshore wind, ocean and floating solar, it is noted that these types of renewable energy technologies are still emerging and in the Philippines still either under project development or ongoing construction. Still, proper skills mapping should be done to see the skills needed in these technologies, this may also assist future operational plants in hiring technically skilled workers. TESDA has already published Labor Market Information Report No. 1 in 2021 titled *“Sustaining the Future: Powering Individuals and Communities through Renewable Energy”*, which listed the various skills by renewable technology and value chain, though the new and emerging RE technologies were not included. Additionally, TESDA has included the emerging technologies in its ongoing Skills Needs Anticipation Workplace and Satisfaction Survey (SNA: WSS) for Renewable Energy. With this, TESDA can use the information to map out the skills needed of each emerging technology.

Table 12. Emerging Renewable Energy Technology Skills Needs and Equivalent Program Qualification

Renewable Energy Technology	Value Chain Segment	Jobs/ Skills/ Qualification	Equivalent Program Qualification
Offshore Wind	Equipment Manufacture and Distribution	Industrial mechanics	No Equivalent Qualification
		Manufacturing technicians	No Equivalent Qualification
		Manufacturing operators	No Equivalent Qualification
		Manufacturing quality assurance experts	No Equivalent Qualification
		Wind Turbine Service Technicians	No Equivalent Qualification
		Certifiers	No Equivalent Qualification

		Logistics professionals	No Equivalent Qualification
		Logistics operators	No Equivalent Qualification
		Equipment transporters	No Equivalent Qualification
		Procurement professionals	No Equivalent Qualification
		Marketing specialists	No Equivalent Qualification
		Sales workers	No Equivalent Qualification
	Project Development	Atmospheric scientists	No Equivalent Qualification
		Economic/financial/risk Specialists	No Equivalent Qualification
		Environmental And social NGO	No Equivalent Qualification
		Environmental impact assessment	No Equivalent Qualification
		Environmental impact assessment specialists	No Equivalent Qualification
		Geographers	No Equivalent Qualification
		Hydrographic Surveyor	No Equivalent Qualification
		Land development advisor	No Equivalent Qualification

		Land use negotiator	No Equivalent Qualification
		Lobbyist	No Equivalent Qualification
		Mediator	No Equivalent Qualification
		Offshore Wind Development Manager	No Equivalent Qualification
		Offshore Wind Operator	No Equivalent Qualification
		Offshore Wind Technician	No Equivalent Qualification
		Procurement professionals	No Equivalent Qualification
		Public relations officers	No Equivalent Qualification
		Social impact specialists	No Equivalent Qualification
		Software engineers Specialists	No Equivalent Qualification
		Wind Resource Analyst	No Equivalent Qualification
		Wind resource assessment Specialist	No Equivalent Qualification
	Construction and Installation	Project designers (engineers)	No Equivalent Qualification
		Project managers	No Equivalent Qualification

		Quality control inspectors	No Equivalent Qualification
		Ship/Cargo Operators	No Equivalent Qualification
		Transportation workers	No Equivalent Qualification
		Wind Resource Analyst	No Equivalent Qualification
		Wind resource assessment specialist	No Equivalent Qualification
		Wind System Engineer	No Equivalent Qualification
		Seaman/ Seafarer	No Equivalent Qualification
		Small wind turbine installers	No Equivalent Qualification
		Instrumentation and control technicians	No Equivalent Qualification
	Operation and Maintenance	Windsmith/millwright/mechanical technician	CNC Milling Machine Operation NC II
			CNC Milling Machine Operation NC III
		Fitter/wind service mechatronics technician	Pipefitting (Metallic) NC II
			Mechatronics Servicing NC II
			Mechatronics Servicing NC III

			Mechatronics Servicing NC IV
		Operations And maintenance specialists	No Equivalent Qualification
		Mechanical Technicians	No Equivalent Qualification
		Offshore Wind Operations Manager	No Equivalent Qualification
		Offshore Wind Operator	No Equivalent Qualification
		Offshore Wind Technician	No Equivalent Qualification
		Seaman/ Seafarer	No Equivalent Qualification
		Boat Skippers and crew	No Equivalent Qualification
		Health and Safety Officers	No Equivalent Qualification
Floating Solar	Equipment Manufacture and Distribution	Chemical laboratory technicians and assistants	No Equivalent Qualification
		Modellers	No Equivalent Qualification
		Manufacturing technicians	No Equivalent Qualification
		Manufacturing operators	No Equivalent Qualification
		Building systems specialists	No Equivalent Qualification
		Manufacturing quality	No Equivalent

		assurance experts	Qualification
		Logistics operators	No Equivalent Qualification
		Equipment transporters	No Equivalent Qualification
		Marketing specialists	No Equivalent Qualification
	Project Development	Project designers	No Equivalent Qualification
		Developers/ facilitators	No Equivalent Qualification
		Environmental and social NGO representatives	No Equivalent Qualification
		Procurement professionals	No Equivalent Qualification
		Seamen/ Seafarer	No Equivalent Qualification
	Construction and Installation	Solar Thermal System designer	No Equivalent Qualification
		Plumbers specializing in solar	No Equivalent Qualification
		Photovoltaic System designer (electrical engineers or technologists)	No Equivalent Qualification
		System designers (electrical/ mechanical/ structural engineers)	No Equivalent Qualification

		Photovoltaic System Installers	No Equivalent Qualification
		Seamen/ Seafarer	No Equivalent Qualification
	Operation and Maintenance	Photovoltaic maintenance specialists (electricians specializing in solar)	PV System Design NC III
			PV Systems Installation NC II
			PV Systems Servicing NC III
		Solar Thermal maintenance specialists (Plumbers specializing in solar)	No Equivalent Qualification
		Concentrated Solar Power maintenance specialists	No Equivalent Qualification
		Inspectors	No Equivalent Qualification
		Recycling specialists	No Equivalent Qualification
		Building inspector	No Equivalent Qualification
		Sales occupations	No Equivalent Qualification
		Sales representatives or estimators	No Equivalent Qualification
		Solar Thermal Installers and Technicians	No Equivalent Qualification

		Solar Energy Systems Engineers	No Equivalent Qualification
		Electrical Engineers	No Equivalent Qualification
		Energy Auditors	No Equivalent Qualification
		Occupational Safety and Health	No Equivalent Qualification
		Laborer	No Equivalent Qualification
		Pile-driving and drilling	No Equivalent Qualification
		Environmental Science Professionals	No Equivalent Qualification
Ocean Energy	Equipment Manufacture and Distribution	Designers	No Equivalent Qualification
		Electrical engineers	No Equivalent Qualification
		Mechanical engineers	No Equivalent Qualification
		Software developers	No Equivalent Qualification
		Machinists	Machining NC I
			Machining NC II
			Machining NC III
		Sales workers	No Equivalent Qualification
	Project	Developers/ facilitators	No Equivalent

	Development		Qualification
		Environmental and social NGO representatives	No Equivalent Qualification
		Procurement professionals	No Equivalent Qualification
		Geomatician	No Equivalent Qualification
		Oceanographer	No Equivalent Qualification
		Marine biologist	No Equivalent Qualification
		Geomatician	No Equivalent Qualification
		Oceanographer	No Equivalent Qualification
		Marine biologist	No Equivalent Qualification
		Data manager	No Equivalent Qualification
		Energy Information Advisor	No Equivalent Qualification
	Construction and Installation	Barge pilot	No Equivalent Qualification
		Deck officer	No Equivalent Qualification
		Drill operator	No Equivalent Qualification
		Hoist operator	No Equivalent Qualification

		Offshore crane operator	No Equivalent Qualification
		Docking pilot	No Equivalent Qualification
		Undersea cable fitter	No Equivalent Qualification
		Anchor flange fitter	No Equivalent Qualification
		Logistics specialist	No Equivalent Qualification
		Technicians (civil, mechanical, electrical)	No Equivalent Qualification
	Operation and Maintenance	Boat Skippers and crew	No Equivalent Qualification
		Diver	No Equivalent Qualification
		Electrical Technicians	No Equivalent Qualification
		Electro-Mechanical Technologists and Technicians	No Equivalent Qualification
		Helicopter pilot	No Equivalent Qualification
		ITC professionals	No Equivalent Qualification
		Logistics specialist	No Equivalent Qualification
		Maintenance technician	No Equivalent Qualification

		Mechanical Technicians	No Equivalent Qualification
		Mechanics and Maintenance workers	No Equivalent Qualification
		Mechatronics Technologists and Technicians	No Equivalent Qualification
		Operations manager	No Equivalent Qualification
		Plant Quality Inspector	No Equivalent Qualification
		Ocean Plant workers	No Equivalent Qualification
		Seamen/ Seafarer	No Equivalent Qualification
		Stock manager	No Equivalent Qualification
		Support vessel captain (tugs and buoying vessels)	No Equivalent Qualification
ALL	Cross-Cutting	Management	No Equivalent Qualification
		Certified Energy Conservation Officer (CECO)	No Equivalent Qualification
		Administration	No Equivalent Qualification
		Publishers and science writers	No Equivalent Qualification

		IT professionals	Computer Systems Servicing NC II
			Web Development NC III
			Programming (.Net Technology) NC III
			Programming (Oracle Database) NC III
			Programming (Java) NC III
		Welders	Flux Cored Arc Welding (FCAW) NC I
			Flux Cored Arc Welding (FCAW) NC II
			Flux Cored Arc Welding (FCAW) NC III
			Gas Metal Arc Welding (GMAW) NC I
			Gas Metal Arc Welding (GMAW) NC II
			Gas Metal Arc Welding (GMAW) NC III
			Gas Tungsten Arc Welding (GTAW) NC

			II
			Gas Tungsten Arc Welding (GTAW) NC IV
			Gas Welding NC I
			Gas Welding NC II
			Shielded Metal Arc Welding (SMAW) NC I
			Shielded Metal Arc Welding (SMAW) NC II
			Shielded Metal Arc Welding (SMAW) NC III
			Shielded Metal Arc Welding (SMAW) NC IV
			Submerged Arc Welding (SAW) NC I
			Submerged Arc Welding (SAW) NC II
		Electrician	Electrical Installation and Maintenance NC II
			Electrical Installation and Maintenance NC III
			Electrical Installation and Maintenance NC IV

		Laborers (Construction)	Carpentry NC II
			Carpentry NC III
			Masonry NC I
			Masonry NC II
			Masonry NC III
			Reinforcing Steel Works NC II
			Scaffolding Works NC II (Supported Type Scaffold)
			System Formwork Installation NC II
			Structural Erection NC II
Note: <ul style="list-style-type: none">- For Certified Energy Conservation Officer (CECO), the skill has been approved by the TESDA Board and still in the development stage. Thus, it is labeled as “No Equivalent Qualification.”			

Laborers (construction) are also needed in the construction and installation segment of all emerging RE technologies, hence the need for “sea” specialization and additional training on safety while working offshore.

VI. TVET Capacity

Table 13. Number of Enrolled, Graduates, Assessed and Certified by Qualification and by Year related to Blue Economy Identified Skills from 2021 - September 2023

Qualifications (TR and CS)	2021				2022				2023 (as of September 2023)			
	Enrolled	Graduates	Assessed	Certified	Enrolled	Graduates	Assessed	Certified	Enrolled	Graduates	Assessed	Certified
Aquaculture NC II	175	117	262	253	39	104	386	368	42	53	529	523
Aquaculture (Grow-out Operation) NC II	0	0	0	0	0	0	0	0	0	0	0	0
Aquaculture (Hatchery Operation) NC II	0	0	0	0	0	0	0	0	0	0	0	0
Aquaculture (Tilapia Culture) NC II	0	0	0	0	0	0	0	0	0	0	0	0
Carpentry NC II	8,786	7,792	7,812	7,520	8,859	9,776	11,977	11,462	4,828	4,469	9,025	8,765
Carpentry NC III	70	44	71	70	26	48	134	128	79	77	95	92
CAD/CAM Operation NC III	0	0	12	12	0	0	0	0	0	0	0	0
CNC Milling Machine Operation NC II	128	70	74	73	50	95	80	78	99	72	69	62
CNC Milling Machine	0	0	0	0	0	0	0	0	0	0	0	0

Qualifications (TR and CS)	2021				2022				2023 (as of September 2023)			
	Enrolled	Graduates	Assessed	Certified	Enrolled	Graduates	Assessed	Certified	Enrolled	Graduates	Assessed	Certified
Operation NC III												
Computer Systems Servicing NC II	12,504	13,709	23,143	19,851	13,513	13,018	31,251	27,139	11,258	9,170	40,759	32,618
Construction Painting II	2,285	1,807	1,511	1,480	2,096	2,383	2,571	2,490	865	829	1,147	1,133
Electrical Installation and Maintenance NC II	23,926	23,275	30,742	28,039	25,830	26,958	42,191	39,054	16,269	13,904	40,861	38,196
Electrical Installation and Maintenance NC III	1,414	1,213	1,286	1,160	956	1,278	1,974	1,816	550	496	1,058	959
Electrical Installation and Maintenance NC IV	0	0	3	3	0	0	10	10	0	0	29	29
Fish Capture NC I	0	0	0	0	0	0	0	0	0	0	0	0
Fish Capture NC II	45	39	52	52	157	120	114	111	0	0	30	30
Fish Products Packaging NC II	0	0	0	0	0	0	0	0	0	0	0	0
Fishing Gear Repair and Maintenance NC III	0	0	0	0	0	0	0	0	0	0	0	0

Qualifications (TR and CS)	2021				2022				2023 (as of September 2023)			
	Enrolled	Graduates	Assessed	Certified	Enrolled	Graduates	Assessed	Certified	Enrolled	Graduates	Assessed	Certified
Fishport/Wharf Operation NC I	0	0	0	0	0	0	0	0	0	0	0	0
Flux Cored Arc Welding (FCAW) NC I	75	24	0	0	6	47	0	0	0	23	0	0
Flux Cored Arc Welding (FCAW) NC II	73	25	103	100	168	166	413	412	76	73	643	638
Flux Cored Arc Welding (FCAW) NC III	0	0	0	0	0	0	0	0	0	0	0	0
Food Processing NC II	1,619	1,788	6,083	5,913	1,579	1,801	5,675	5,554	265	210	3,069	2,880
Gas Metal Arc Welding (GMAW) NC I	125	46	30	30	52	74	121	98	124	89	168	168
Gas Metal Arc Welding (GMAW) NC II	956	970	1,122	1,114	1,076	1,249	1,594	1,545	604	602	1,246	1,220
Gas Metal Arc Welding (GMAW) NC III	23	23	23	23	0	0	1	1	25	0	0	0
Gas Tungsten Arc Welding (GTAW) NC II	1,472	1,570	1,737	1,717	891	1,076	1,784	1,738	669	647	1,112	1,096
Gas Tungsten Arc Welding (GTAW) NC IV	0	0	0	0	0	0	0	0	0	0	0	0

Qualifications (TR and CS)	2021				2022				2023 (as of September 2023)			
	Enrolled	Graduates	Assessed	Certified	Enrolled	Graduates	Assessed	Certified	Enrolled	Graduates	Assessed	Certified
Gas Welding NC I	25	25	0	0	25	24	37	37	0	0	0	0
Gas Welding NC II	2	2	0	0	11	16	0	0	3	1	0	0
Lifeguard Services NC III	0	0	0	0	0	0	0	0	0	0	0	0
Local Guiding Services NC II	0	0	0	0	0	0	0	0	0	0	0	0
Machining NC I	110	106	133	127	103	104	149	148	129	23	192	174
Machining NC II	613	433	625	612	715	717	1,042	968	662	458	665	624
Machining NC III	0	0	0	0	0	0	0	0	0	0	0	0
Marine Electricity NC II	0	0	0	0	0	0	0	0	0	0	0	0
Masonry NC I	3,542	3,179	2,017	1,956	5,142	5,189	4,674	4,600	1,713	1,743	1,695	1,686
Masonry NC II	6,027	5,390	5,208	5,079	5,727	6,054	7,968	7,618	3,122	3,277	6,337	6,219
Masonry NC III	0	0	0	0	0	0	61	52	0	0	21	11
Mechatronics Servicing NC II	646	445	823	703	951	949	1,959	1,778	949	799	1,418	1,323
Mechatronics Servicing NC III	98	92	145	132	153	161	256	251	65	5	57	57

Qualifications (TR and CS)	2021				2022				2023 (as of September 2023)			
	Enrolled	Graduates	Assessed	Certified	Enrolled	Graduates	Assessed	Certified	Enrolled	Graduates	Assessed	Certified
Mechatronics Servicing NC IV	0	0	0	0	0	0	17	16	0	0	0	0
Motorcycle/Small Engine Servicing NC II	1,410	1,550	5,566	5,083	1,129	1,265	5,749	5,465	454	336	4,335	4,230
Pipefitting (Metallic) NC II	959	860	794	789	397	483	1,773	1,672	451	466	1,595	1,581
Pipefitting NC II	50	73	114	114	0	0	0	0	0	0	0	0
Plant Maintenance NC I	0	0	0	0	0	0	0	0	0	0	0	0
Plumbing NC I	1,242	1,175	924	895	1,654	1,697	1,445	1,420	1,239	990	726	717
Plumbing NC II	2,231	1,935	2,157	1,933	1,934	2,101	3,400	3,099	1,269	1,095	1,983	1,877
Plumbing NC III	50	49	40	40	0	0	0	0	0	0	0	0
Programming (.Net Technology) NC III	0	0	0	0	0	0	0	0	0	0	0	0
Programming (Java) NC III	533	412	0	0	1,477	1,675	0	0	1,508	1,337	0	0
Programming (Oracle Database) NC III	0	0	0	0	0	0	0	0	0	0	0	0
PV System Design NC III	0	0	0	0	0	0	0	0	0	0	0	0

Qualifications (TR and CS)	2021				2022				2023 (as of September 2023)			
	Enrolled	Graduates	Assessed	Certified	Enrolled	Graduates	Assessed	Certified	Enrolled	Graduates	Assessed	Certified
PV Systems Installation NC II	2,919	2,370	2,191	1,982	2,715	2,865	2,328	2,173	1,364	1,140	1,716	1,590
PV Systems Servicing NC III	104	94	0	0	3	10	69	69	0	0	72	69
Reinforcing Steel Works NC II	0	0	44	39	61	33	813	781	35	22	524	508
Rigging NC I	142	159	1,519	1,439	167	130	2,172	2,075	45	50	1,578	1,549
Scaffolding Works NC II (Supported Type Scaffold)	1,057	970	4,511	4,397	1,102	1,190	8,051	7,747	1,766	1,523	7,331	7,069
Seaweeds Production NC II	0	0	0	0	0	0	0	0	0	0	10	10
Shielded Metal Arc Welding (SMAW) NC I	25,330	24,870	24,578	23,288	22,957	26,820	28,034	26,588	16,040	14,117	18,527	17,437
Shielded Metal Arc Welding (SMAW) NC II	29,163	29,581	34,716	32,625	25,453	30,315	42,289	39,896	14,163	12,729	28,923	27,401
Shielded Metal Arc Welding (SMAW) NC III	1,905	1,950	1,850	1,791	785	1,059	1,150	1,120	740	745	647	630
Shielded Metal Arc Welding (SMAW) NC IV	141	140	172	169	0	0	49	41	155	127	108	105
Ships' Catering NC III (Ships'	1,939	1,336	2,404	2,295	2,031	1,799	4,829	4,611	1,252	571	3,209	3,140

Qualifications (TR and CS)	2021				2022				2023 (as of September 2023)			
	Enrolled	Graduates	Assessed	Certified	Enrolled	Graduates	Assessed	Certified	Enrolled	Graduates	Assessed	Certified
Cooks)												
Ship's Catering Services NC I	8,877	7,858	10,212	10,043	9,669	8,291	13,873	13,758	8,407	4,574	10,990	10,924
Structural Erection NC II	0	0	0	0	0	0	0	0	0	0	0	0
Submerged Arc Welding (SAW) NC I	0	0	0	0	0	0	0	0	0	0	0	0
Submerged Arc Welding (SAW) NC II	0	0	0	0	0	0	0	0	0	0	0	0
System Formwork Installation NC II	0	0	20	20	37	0	22	22	21	0	79	79
Tour Guiding Services NC III	108	175	120	109	0	5	117	115	0	0	91	80
Tour Packaging (FIT AD HOC DOMESTIC) Services NC II	0	0	0	0	0	0	0	0	0	0	14	12
Tourism Promotion Services NC II	480	499	666	523	1,706	1,589	2,903	2,524	835	667	3,454	3,052
Travel Services NC II	22	20	288	253	0	5	185	180	12	2	234	214
Web Development NC III	0	0	14	7	51	60	222	159	59	20	217	86

Qualifications (TR and CS)	2021				2022				2023 (as of September 2023)			
	Enrolled	Graduates	Assessed	Certified	Enrolled	Graduates	Assessed	Certified	Enrolled	Graduates	Assessed	Certified
Boat Building (Composite Materials) Level II	0	0			0	0			0	0		
Fish Finder Equipment Servicing Level III	0	0			0	0			0	0		
Fish Finder Operation Level III	0	0			0	0			0	0		
Net Construction and Maintenance Level II	0	0			0	0			0	0		
Sonar Equipment Servicing Level III	0	0			0	0			0	0		

Source: TESDA ICTO (Enrolled, Graduates) and Certification Office (Assessed, Certified)
 Processed by: TESDA Planning Office

Table 14. Number of Assessment Centers, Competency Assessors, Registered Programs, and National TVET Trainers Certification Holder related to Renewable Energy as of September 2023

Training Regulation	No. of Assessment Centers	No. of Competency Assessors	Registered Programs	Trainers
Aquaculture NC II	7	15	10	70
Aquaculture (Grow-out Operation) NC II	1	0	0	0
Aquaculture (Hatchery Operation) NC II	2	0	0	0
Aquaculture (Tilapia Culture) NC II	2	0	0	0
Carpentry NC II	10	24	6	45
Carpentry NC III	0	1	0	4
Carpentry NC III	5	6	3	18
CNC Milling Machine Operation NC II	1	0	0	9
CNC Milling Machine Operation NC III	303	548	610	2186
Computer Systems Servicing NC II	32	60	46	130

Training Regulation	No. of Assessment Centers	No. of Competency Assessors	Registered Programs	Trainers
Construction Painting II	289	509	495	1702
Electrical Installation and Maintenance NC II	50	74	53	282
Electrical Installation and Maintenance NC III	5	3	3	18
Electrical Installation and Maintenance NC IV	0	0	0	0
Fish Capture NC I	3	7	3	9
Fish Capture NC II	0	0	0	0
Fish Products Packaging NC II	0	0	0	0
Fishing Gear Repair and Maintenance NC III	0	0	0	0
Fishport/Wharf Operation NC I	4	0	6	0
Flux Cored Arc Welding (FCAW) NC I	19	19	15	152
Flux Cored Arc Welding (FCAW) NC II	1	0	0	1
Flux Cored Arc Welding (FCAW) NC III	62	138	98	440

Training Regulation	No. of Assessment Centers	No. of Competency Assessors	Registered Programs	Trainers
Food Processing NC II	11	10	14	0
Gas Metal Arc Welding (GMAW) NC I	41	74	55	338
Gas Metal Arc Welding (GMAW) NC II	2	6	3	13
Gas Metal Arc Welding (GMAW) NC III	55	84	69	354
Gas Tungsten Arc Welding (GTAW) NC II	0	0	0	0
Gas Tungsten Arc Welding (GTAW) NC IV	2	2	1	0
Gas Welding NC I	5	6	3	1
Gas Welding NC II	1	0	1	2
Lifeguard Services NC III	1	2	6	3
Local Guiding Services NC II	5	6	13	0
Machining NC I	25	32	37	144
Machining NC I	1	1	3	22
Machining NC II	0	0	0	0

Training Regulation	No. of Assessment Centers	No. of Competency Assessors	Registered Programs	Trainers
Machining NC II	58	99	81	0
Machining NC III	131	204	224	525
Marine Electricity NC II	7	14	2	46
Masonry NC I	22	27	36	86
Masonry NC II	7	10	6	28
Masonry NC III	1	4	2	9
Mechatronics Servicing NC II	9	28	12	60
Mechatronics Servicing NC III	0	10	6	45
Mechatronics Servicing NC IV	0	0	0	0
Motorcycle/Small Engine Servicing NC II	68	74	101	261
Pipefitting (Metallic) NC II	34	25	39	0
Pipefitting NC I	62	70	97	209
Plant Maintenance NC I	1	3	1	9
Plumbing NC I	0	0	0	0
Plumbing NC II	0	0	24	37

Training Regulation	No. of Assessment Centers	No. of Competency Assessors	Registered Programs	Trainers
Plumbing NC III	0	0	0	0
Programming (.Net Technology) NC III	2	0	0	0
Programming (Java) NC III	55	74	81	272
Programming (Oracle Database) NC III	6	4	0	26
PV System Design NC III	9	10	6	19
PV Systems Installation NC II	18	23	10	23
PV Systems Servicing NC III	63	99	53	183
Reinforcing Steel Works NC II	1	0	0	3
Rigging NC I	344	414	604	2,366
Scaffolding Works NC II (Supported Type Scaffold)	410	654	788	384
Seaweeds Production NC II	0	0	64	0
Shielded Metal Arc Welding (SMAW) NC I	52	73	5	64
Shielded Metal Arc Welding (SMAW) NC II	9	7	27	145

Training Regulation	No. of Assessment Centers	No. of Competency Assessors	Registered Programs	Trainers
Shielded Metal Arc Welding (SMAW) NC III	27	35	60	105
Shielded Metal Arc Welding (SMAW) NC IV	40	60	0	0
Ships' Catering NC III (Ships' Cooks)	0	0	0	0
Ship's Catering Services NC I	0	1	0	0
Structural Erection NC II	1	6	3	7
Submerged Arc Welding (SAW) NC I	0	2	0	1
Submerged Arc Welding (SAW) NC II	56	87	41	162
System Formwork Installation NC II	13	15	8	16
Tour Packaging (FIT AD HOC DOMESTIC) Services NC II	21	12	8	34
Tourism Promotion Services NC II	0	0	0	0
Travel Services NC II	0	0	0	0

Training Regulation	No. of Assessment Centers	No. of Competency Assessors	Registered Programs	Trainers
Web Development NC III	0	0	0	0

Source: TESDA Certification Office

Processed by: TESDA Planning Office

Based on Table 13, most of the related Training Regulations have a large number of enrolled, graduate, assessed and certified across the identified related qualifications, with the top qualifications with the highest combined enrollees from 2021 to latest 2023 data are Shielded Metal Arc Welding (SMAW) NC II, Electrical Installation and Maintenance NC II, Shielded, Metal Arc Welding (SMAW) NC I, Computer Systems Servicing NC II and Ship's Catering Services NC I. It should also be noted that all identified Competency Standard qualifications have zero (0) enrolled and graduates.

In terms of TVET infrastructure, Rigging NC I, CNC Milling Machine Operation NC III, Construction Painting II, and Machining NC III were the TRs that had the highest number of trainers registered. There were also 26 out of the 75 TRs that had 0 registered Trainers. There are also 25 TRs that have 0 registered programs

VII. Recommendations

With the introduction of the Blue Economy concept and its strong emphasis on sustainable development, the Philippines now has an excellent opportunity to raise its global profile through proper implementation of its blue economy frameworks. To date, the government has enacted policies, guidelines, and new laws aimed at making the economy sustainable in the future. However, the country still faces issues, such as food security, the proper integration of sustainability-related skills, and the establishment of "blue" and "green" aligned jobs for each industry as seen in the 2018 National State of the Oceans and Coasts.

The following are recommendations from TESDA:

- **Collaborations and Partnerships**

Continuous collaborations with concerned agencies with existing Memorandum of Agreements (MOAs) such as the Department of Tourism (DOT) and Maritime Industry Authority (MARINA). TESDA should have productive consultations with each agency on what "blue" economy related skills/jobs/qualification should be prioritized.

- TESDA should also establish linkages with other concerned agencies in the blue economy such as the Department of Agriculture - Bureau of Fisheries and Aquaculture (DA-BFAR) and the Department of Environment and Natural Resources (DENR). For the emerging industry, especially in renewable energy, TESDA needs to partner with the Department of Energy (DOE) to prioritize the anticipated skills/jobs needed in these new plants being built.
- It is crucial to involve industry associations in consultation processes, as this guarantees the incorporation of crucial industry inputs. Inclusion of skills/jobs focused on ocean conservation and sustainable activities should be included in these consultations.

- **Adoption of Blue-Economy Competencies**

Based on the report from *LMIR No. 1 S. 2023*, TESDA has now embedded “green competencies” in different qualifications; with this data, the table below shows the corresponding identified TVET qualifications that already have these competencies.

Table 15. Blue Economy Subsectors' Equivalent Qualifications with Green Competencies

Sub-Sectors	Equivalent Qualifications with Green Competencies
Fisheries and Aquaculture	Aquaculture (Grow-out Operation) NC II
	Aquaculture (Hatchery Operation) NC II
	Aquaculture (Tilapia Culture) NC II
Coastal and Marine Tourism	Tour Guiding Services NC III
	Tour Packaging (FIT AD HOC DOMESTIC) Services NC II
	Travel Services NC II
Shipbuilding and Ship Repair	Manual Metal Arc Welding (MMAW) NC I
	Manual Metal Arc Welding (MMAW) NC II
	Manual Metal Arc Welding (MMAW) NC III
	Manual Metal Arc Welding (MMAW) NC IV

Source: *LMIR No. 1 S. 2023; Green Skills for Green Jobs 2.0: Expanding Green TVET Infrastructure for the Skilled Workforce*

- TESDA is recommended to adopt and incorporate ocean-sustainability and conservation-related competencies into identified blue economy qualifications, in addition to the existing green competencies. It is important to understand that blue

economy skills are closely connected to green economy skills, with the main distinction being their respective areas of focus. The blue economy focuses mainly on sustainable operations in coastal areas and oceans, while the green economy focuses on the natural resources of the land.

- **Enhancement of Area Based Demand Driven TVET (ABDD)**

- With the Area Based and Demand Driven (ABDD) TVET as the agency's central strategy, TESDA Provincial and Regional Offices have submitted their respective skills priorities report. **Annex A** shows the corresponding identified blue economy skills and the priority skills in each region and provinces.
- Although, most regions identified fisheries and aquaculture as well as coastal and marine tourism specific skills as priorities, specific regions that have working shipyards (based on MARINA) have not identified skills related to shipbuilding and ship repair (SBSR); only Regions III and VI have identified related skills. NCR and Region V were also the only regions that identified eco-tourism related skills and no region has identified diver instructor as a priority under tourism.
- Thus, it is recommended that TESDA enhance and improve the skills priorities for regions and provinces that have blue economy sub sectors which are: Fisheries and Aquaculture, Coastal and Marine Tourism and ShipBuilding and Ship Repair. Regions and their Provinces should properly identify through their skills mapping, each area's skills needs, such as the areas where there are shipyards (based on table 8).

- **Scholarship Program Allotment**

- A majority of the skills identified in the country's Blue Economy are included in the agency's top 10 priority skills, specifically: (1)

Agriculture, Fisheries and Forestry (AFF); (2) Tourism; and (3) Manufacturing.

- TESDA offers various scholarship programs catered to the identified sectors that have existing qualifications such as Training for Work Scholarship Program (TWSP); Special Training for Employment Program (STEP); Private Education Student Financial Assistance (PESFA); and Universal Access to Quality Tertiary Education Act (UAQTEA). Thus, it is recommended that TESDA increase its allotment of scholarship funds to the identified programs under the Blue Economy.

- Strengthening TVET Infrastructure and Capacity**

- Based on Tables 13 and 14, there are qualifications that have no enrolled, graduated, assessed and certified as well as no registered program as seen below.

Table 16. Comparative table between TRs with no enrollment, graduates, assessed and certified (EGAC) from 2020 to September 2023 data and TRs with no registered programs.

TRs with no EGAC Data	TRs without Registered Program
Aquaculture (Grow-out Operation) NC II	Aquaculture (Grow-out Operation) NC II
Aquaculture (Hatchery Operation) NC II	Aquaculture (Hatchery Operation) NC II
Aquaculture (Tilapia Culture) NC II	Aquaculture (Tilapia Culture) NC II
Electrical Installation and Maintenance NC IV	Electrical Installation and Maintenance NC IV
	Carpentry NC III
Fish Capture NC I	Fish Capture NC II
	CNC Milling Machine Operation NC II

TRs with no EGAC Data	TRs without Registered Program
Fish Products Packaging NC II	Fish Products Packaging NC II
Fishing Gear Repair and Maintenance NC III	Fishing Gear Repair and Maintenance NC III
	Fishport/Wharf Operation NC I
Food Processing NC II	
Gas Tungsten Arc Welding (GTAW) NC II	Gas Tungsten Arc Welding (GTAW) NC II
	Flux Cored Arc Welding (FCAW) NC II
Gas Tungsten Arc Welding (GTAW) NC IV	
Local Guiding Services NC II	
Mechatronics Servicing NC IV	Mechatronics Servicing NC IV
Machining NC II	Machining NC II
Plumbing NC I	Plumbing NC I
Plumbing NC III	Plumbing NC III
Pipefitting (Metallic) NC II	
Programming (.Net Technology) NC III	Programming (.Net Technology) NC III
	Programming (Oracle Database) NC III
	Shielded Metal Arc Welding (SMAW) NC IV
Ships' Catering NC III (Ships' Cooks)	Ships' Catering NC III (Ships' Cooks)
Ship's Catering Services NC I	Ship's Catering Services NC I
Seaweeds Production NC II	
Shielded Metal Arc Welding (SMAW)	

TRs with no EGAC Data	TRs without Registered Program
NC IV	
	Submerged Arc Welding (SAW) NC I
Tourism Promotion Services NC II	Tourism Promotion Services NC II
Travel Services NC II	Travel Services NC II
Web Development NC III	Web Development NC III

Source: TESDA Certification Office

Processed by: TESDA Planning Office

- From Table 16, most of the qualifications that have no EGAC data from the last 3 years have zero (0) registered programs as of September 2023. With this, TESDA is recommended to strengthen its TVET infrastructure, through increasing the number of program registrations for the identified TRs for the blue economy. TESDA ROPOs may use its updated skills priorities as an indicator to check which area has the skills needed, then ROPOs can recommend institutions to register the underutilized qualification.
- It also recommended that TESDA conduct trainers to develop regional lead trainers (RLT) and regional lead assessors (RLA) specially for the blue-economy related qualifications that have no trainers identified. As seen in table 14, there are TRs that have no trainers, this may also contribute to institutions not having registered programs as trainers are a prerequisite.

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Annex A: Skills Priorities per Region Based on the Blue-Economy taken from the Regional and Provincial Skills Priorities Submissions as of September 2023

Sector	Region	Province	Skills/Jobs/	Equivalent Qualification
Tourism (Hotel and Restaurant)	NCR	NA	Tour Guide, Virtual promotions, Virtual guiding	Local Guiding Services NC II
Tourism (Hotel and Restaurant)	NCR	NA	Tour Guide, Virtual promotions, Virtual guiding	Tour Guiding Services NC III
Tourism (Hotel and Restaurant)	NCR	NA	Eco-tourism	No Equivalent Qualification
Tourism (Hotel and Restaurant)	NCR	NA	Posologist (Agri-Tourism)	No Equivalent Qualification
Tourism (Hotel and Restaurant)	NCR	NA	Tour Packaging, Reservations Officer	No Equivalent Qualification
Tourism (Hotel and Restaurant)	NCR	NA	Tourism Site Planner/ Developer	Tourism Site Planner/ Developer
Tourism (Hotel and Restaurant)	NCR	NA	Trainer, Tourism Instructor	Trainers Methodology Level I
Tourism (Hotel and Restaurant)	NCR	NA	Trainer, Tourism Instructor	Trainers Methodology Level II
Tourism (Hotel and Restaurant)	NCR	NA	Tour Packaging, Reservations Officer	Travel Services NC II
Manufacturing	NCR	NA	Sheet and structural metal workers, moulders and welders, and related workers	Manual Metal Arc Welding (MMAW) NC IV
Manufacturing	NCR	NA	Sheet and structural metal workers, moulders and welders, and related workers	Shielded Metal Arc Welding (SMAW) NC I
Manufacturing	NCR	NA	Sheet and structural metal workers, moulders and welders, and related workers	Shielded Metal Arc Welding (SMAW) NC II
Manufacturing	NCR	NA	Sheet and structural metal workers, moulders and welders, and related workers	Shielded Metal Arc Welding (SMAW) NC III
Manufacturing	NCR	NA	Sheet and structural metal workers, moulders and welders, and related workers	Shielded Metal Arc Welding (SMAW) NC IV

Sector	Region	Province	Skills/Jobs/	Equivalent Qualification
Manufacturing	NCR	NA	Sheet and structural metal workers, moulders and welders, and related workers	Submerged Arc Welding (SAW) NC I
Manufacturing	NCR	NA	Sheet and structural metal workers, moulders and welders, and related workers	Submerged Arc Welding (SAW) NC II
Transport and Logistics	NCR	NA	Welding	Flux Cored Arc Welding (FCAW) NC I
Transport and Logistics	NCR	NA	Welding	Flux Cored Arc Welding (FCAW) NC III
Transport and Logistics	NCR	NA	Welding	Flux Cored Metal Arc Welding (FCAW) NC II
Transport and Logistics	NCR	NA	Welding	Gas Metal Arc Welding (GMAW) NC I
Transport and Logistics	NCR	NA	Welding	Gas Metal Arc Welding (GMAW) NC II
Transport and Logistics	NCR	NA	Welding	Gas Metal Arc Welding (GMAW) NC III
Transport and Logistics	NCR	NA	Welding	Gas Tungsten Arc Welding (GTAW) NC II
Transport and Logistics	NCR	NA	Welding	Gas Tungsten Arc Welding (GTAW) NC IV
Transport and Logistics	NCR	NA	Welding	Gas Welding NC I
Transport and Logistics	NCR	NA	Welding	Gas Welding NC II
Transport and Logistics	NCR	NA	Welding	Manual Metal Arc Welding (MMAW) NC I
Transport and Logistics	NCR	NA	Welding	Manual Metal Arc Welding (MMAW) NC II
Transport and Logistics	NCR	NA	Welding	Manual Metal Arc Welding (MMAW) NC III
Transport and Logistics	NCR	NA	Welding	Manual Metal Arc Welding (MMAW) NC IV
Transport and Logistics	NCR	NA	Welding	Shielded Metal Arc Welding (SMAW) NC I

Sector	Region	Province	Skills/Jobs/	Equivalent Qualification
Transport and Logistics	NCR	NA	Welding	Shielded Metal Arc Welding (SMAW) NC II
Transport and Logistics	NCR	NA	Welding	Shielded Metal Arc Welding (SMAW) NC III
Transport and Logistics	NCR	NA	Welding	Shielded Metal Arc Welding (SMAW) NC IV
Transport and Logistics	NCR	NA	Welding	Submerged Arc Welding (SAW) NC I
Transport and Logistics	NCR	NA	Welding	Submerged Arc Welding (SAW) NC II
Construction	NCR	NA	Carpenter	Carpentry NC II
Construction	NCR	NA	Carpenter	Carpentry NC III
Construction	NCR	NA	Machine operator	Machining NC I
Construction	NCR	NA	Machine operator	Machining NC II
Construction	NCR	NA	Pipefitter	Pipefitting (Metallic) NC II
Construction	NCR	NA	Rigger	Rigging NC I
Manufacturing	NCR	NA	Automotive Technician	Machining NC II
Manufacturing	NCR	NA	CAD/CAM Operator	CAD/CAM Operation NC III
Manufacturing	NCR	NA	Carpenter	Carpentry NC II
Manufacturing	NCR	NA	Carpenter	Carpentry NC III
Manufacturing	NCR	NA	Machinists; mill adjusters; Machine adjuster, conventional machinist, shop floor math	Machining NC I
Manufacturing	NCR	NA	Machinists; mill adjusters; Machine adjuster, conventional machinist, shop floor math	Machining NC II

Sector	Region	Province	Skills/Jobs/	Equivalent Qualification
Manufacturing	NCR	NA	Machinists; mill adjusters; Machine adjuster, conventional machinist, shop floor math	Machining NC III
Manufacturing	NCR	NA	Plant Mechanic	Plant Maintenance NC I
Transport and Logistics	NCR	NA	Rigging	Rigging NC I
Agriculture, Forestry and Fishery	Region I	Ilocos Norte	Fisherman	Aquaculture NC II
Agriculture, Forestry and Fishery	Region I	Ilocos Norte	Fisherman	Fish Capture NC I
Agriculture, Forestry and Fishery	Region I	Ilocos Norte	Fisherman	Fish Capture NC II
Agriculture, Forestry and Fishery	Region I	Pangasinan	Breeding Fishery (Vaccination of Fishes)	No Equivalent Qualification
Tourism	Region I	Ilocos Norte	Local Tour Guiding	Local Guiding NC II
Tourism	Region I	La Union	Local Tour Guides	Local Guiding Services NC II/Tourism Promotion Services NC II
Tourism	Region I	La Union	Local Tour Guides	Local Guiding Services NC II
Tourism	Region I	La Union	Tourism Promotion Workers	Tourism Promotion NC II
Tourism	Region I	Pangasinan	Tour Guiding	Tour Guiding Services NC II
Tourism	Region I	La Union	Ship's Cook/Caterer	Ship's Catering Services NC I
Tourism	Region I	La Union	Ship's Cook/Caterer	Ships' Catering (Ships' Cook) NC III
Maritime	Region I	Pangasinan	Ship's Cook	Ship's Catering (Ships Cook) NC III
Maritime	Region I	Pangasinan	Ship's Caterer	Ship's Catering NC I

Sector	Region	Province	Skills/Jobs/	Equivalent Qualification
Construction	Region I	La Union	Riggers	Rigging NC I
Construction	Region I	Ilocos Norte	Carpenter	Carpentry NC II
Construction	Region I	Ilocos Norte	Carpenter	Carpentry NC III
Construction	Region I	Ilocos Sur	Carpenter	Carpentry NC II
Construction	Region I	La Union	Carpenters	Carpentry NC II
Construction	Region I	La Union	Carpenters	Carpentry NC III
Construction	Region I	La Union	Finish Carpenters	Carpentry NC III
Construction	Region I	La Union	Rough Carpenters	Carpentry NC II
Construction	Region I	Pangasinan	Carpenters	Carpentry NC II
Construction	Region I	Ilocos Norte	Carpenter	Carpentry NC II
Construction	Region I	Ilocos Norte	Carpenter	Carpentry NC III
Construction	Region I	Ilocos Norte	Mason	Masonry NC I
Construction	Region I	Ilocos Norte	Mason	Masonry NC II
Construction	Region I	Ilocos Norte	Mason	Masonry NC III
Construction (Metals and Engineering)	Region I	Ilocos Sur	Welder	Shielded Metal Arc Welding NC I
Construction (Metals and Engineering)	Region I	Ilocos Sur	Welder	Shielded Metal Arc Welding NC II
Construction	Region I	Ilocos Sur	Carpenter	Carpentry NC II
Construction	Region I	Ilocos Sur	Mason	Masonry NC II

Sector	Region	Province	Skills/Jobs/	Equivalent Qualification
Construction	Region I	La Union	Building Painters	Construction Painting II
Construction	Region I	La Union	Carpenters	Carpentry NC II
Construction	Region I	La Union	Carpenters	Carpentry NC III
Construction	Region I	La Union	Finish Carpenters	Carpentry NC III
Construction	Region I	La Union	Masons	Masonry NC II
Construction	Region I	La Union	Riggers	Rigging NC I
Construction	Region I	La Union	Rough Carpenters	Carpentry NC II
Construction	Region I	La Union	Steelmen	Machining NC II
Construction	Region I	La Union	Steelmen	Shielded Metal arc Welding NC II
Construction	Region I	La Union	Welders	Shielded Metal Arc Welding NC II
Construction	Region I	Pangasinan	Masons	Masonry NC II
Construction	Region I	Pangasinan	Carpenters	Carpentry NC II
Construction (Metals and Engineering)	Region I	Pangasinan	Carpenters	Gas Tungsten Arc Welding NC II
Manufacturing (Metals and Engineering)	Region I	La Union	Metal product fabricators	Shielded Metal Arc Welding NC I
Manufacturing (Metals and Engineering)	Region I	La Union	Metal product fabricators	Shielded Metal Arc Welding NC II
Metals and Engineering	Region I	Ilocos Norte	Welder	Shielded Metal Arc Welding NC I
Metals and Engineering	Region I	Ilocos Norte	Welder	Shielded Metal Arc Welding NC II

Sector	Region	Province	Skills/Jobs/	Equivalent Qualification
Metals and Engineering	Region I	Ilocos Norte	Welder	Gas Metal Arc Welding NC II,
Metals and Engineering	Region I	Ilocos Norte	Machinist	Machining NC II
Agriculture, Forestry and Fishery	Region II	Cagayan	Fish Capture - Ultimo	Fish Capture NC I
Agriculture, Forestry and Fishery	Region II	Cagayan	Fish Handler	Fishport/Wharf Operation NC I
Agriculture, Forestry and Fishery	Region II	Cagayan	Fish Nursery Worker	Aquaculture NC II
Agriculture, Forestry and Fishery	Region II	Cagayan	Fish Packaging Worker	Fish Products Packaging NC II
Agriculture, Forestry and Fishery	Region II	Cagayan	Marine Fish and Crustaceans Hatchery	No Equivalent Qualification
Agriculture, Forestry and Fishery	Region II	Isabela	Grow-out and hatchery production Cat fish (Hito)	Aquaculture (Grow-Out Operation) NC II
Agriculture, Forestry and Fishery	Region II	Isabela	Grow-out and hatchery production Cat fish (Hito)	Aquaculture (Hatchery Operation) NC II
Agriculture, Forestry and Fishery	Region II	Isabela	Grow-out and hatchery production Cat fish (Hito)	Aquaculture (Tilapia Culture) NC II
Agriculture, Forestry and Fishery	Region II	Quirino	Fish Farmer	No Equivalent Qualification
Agriculture, Forestry and Fishery	Region II	Nueva Vizcaya	Fish Nursery Worker	Aquaculture NC II
Agriculture, Forestry and Fishery	Region II	Nueva Vizcaya	Fish Capture Ultimo	Fish Capture NC I

Sector	Region	Province	Skills/Jobs/	Equivalent Qualification
Agriculture, Forestry and Fishery	Region II	Nueva Vizcaya	Fish Packaging Worker	Fish Products Packaging NC II
Agriculture, Forestry and Fishery	Region II	Nueva Vizcaya	Fish Handler	Fishport/Wharf Operation NC I
Agriculture, Forestry and Fishery	Region II	Nueva Vizcaya	Fish Protection Sanctuary	No Equivalent Qualification
Construction	Region II	Batanes	Welder/Fabricator	Shielded Metal Arc Welding (SMAW) NC II
Construction	Region II	Batanes	Welder/Fabricator	Manual Metal Arc Welding (MMAW) NC II
Metals and Engineering	Region II	Batanes	Welder	Manual Metal Arc Welding (MMAW) NC II
Construction	Region II	Cagayan	Welder	Shielded Metal Arc Welding (SMAW) NC I
Construction	Region II	Cagayan	Welder	Shielded Metal Arc Welding (SMAW) NC II
Construction	Region II	Cagayan	Welder	Shielded Metal Arc Welding (SMAW) NC I
Construction	Region II	Cagayan	Welder	Shielded Metal Arc Welding (SMAW) NC II
Construction	Region II	Cagayan	Welder	Manual Metal Arc Welding (MMAW) NC I
Construction	Region II	Cagayan	Welder	Manual Metal Arc Welding (MMAW) NC II
Metals and Engineering	Region II	Isabela	Steel-based Furniture Making	Shielded Metal Arc Welding (SMAW) NC I
Metals and Engineering	Region II	Isabela	Steel-based Furniture Making	Shielded Metal Arc Welding (SMAW) NC II
Metals and Engineering	Region II	Isabela	Steel-based Furniture Making	Shielded Metal Arc Welding (SMAW) NC III
Metals and Engineering	Region II	Isabela	Steel-based Furniture Making	Shielded Metal Arc Welding (SMAW) NC IV
Metals and Engineering	Region II	Isabela	Steel-based Furniture Making	Manual Metal Arc Welding (MMAW) NC I

Sector	Region	Province	Skills/Jobs/	Equivalent Qualification
Metals and Engineering	Region II	Isabela	Steel-based Furniture Making	Manual Metal Arc Welding (MMAW) NC II
Metals and Engineering	Region II	Isabela	Steel-based Furniture Making	Manual Metal Arc Welding (MMAW) NC III
Metals and Engineering	Region II	Isabela	Steel-based Furniture Making	Manual Metal Arc Welding (MMAW) NC IV
Metals and Engineering	Region II	Isabela	Weld Carbon Steel Plates	Gas Tungsten Arc Welding (GTAW) NC II
Metals and Engineering	Region II	Isabela	Weld Carbon Steel Plates	Gas Metal Arc Welding (GMAW) NC II
Metals and Engineering	Region II	Quirino	Welder	Shielded Metal Arc Welding (SMAW) NC I
Metals and Engineering	Region II	Quirino	Welder	Shielded Metal Arc Welding (SMAW) NC II
Metals and Engineering	Region II	Quirino	Welder	Shielded Metal Arc Welding (SMAW) NC III
Metals and Engineering	Region II	Quirino	Welder	Gas Metal Arc Welding (GMAW) NC II
Metals and Engineering	Region II	Nueva Vizcaya	Iron Steel Welders and Fabricators	Shielded Metal Arc Welding NC II
Agriculture, Forestry and Fishery	Region III	Aurora	Backyard Fish Pond (Tilapia)	Aquaculture (Tilapia Culture) NC II
Agriculture, Forestry and Fishery	Region III	Bulacan	Fishery Technician	No Equivalent Qualification
Agriculture, Forestry and Fishery	Region III	Bulacan	Fish Farm Worker/ Fingerlings Caretaker	Aquaculture (Grow-out Operation) NC II
Agriculture, Forestry and Fishery	Region III	Bulacan	Fish Processor/Processing	Food Processing NC II
Agriculture, Forestry and Fishery	Region III	Bulacan	Fisheries Entrepreneur	No Equivalent Qualification
Agriculture, Forestry and	Region III	Bulacan	Fish Pond Engineer	No Equivalent Qualification

Sector	Region	Province	Skills/Jobs/	Equivalent Qualification
Fishery				
Agriculture, Forestry and Fishery	Region III	Zambales	Fish Checker	No Equivalent Qualification
Agriculture, Forestry and Fishery	Region III	Zambales	Fish Classifier	No Equivalent Qualification
Tourism	Region III	Aurora	Tourist Attendant	No Equivalent Qualification
Tourism	Region III	Aurora	Tourist Guide/Tour Guide	Local Guiding Services NC II
Tourism	Region III	Aurora	Tourist Guide/Tour Guide	Tour Guiding Services NC III
Tourism	Region III	Aurora	Tourist Tricycle Driver	No Equivalent Qualification
Tourism	Region III	Bataan	Tour Guides	Tour Guiding Services NC III
Tourism	Region III	Bataan	Tour Guides	Local Guiding Services NC II
Tourism	Region III	Pampanga	Tour Guide	Tour Guiding NC II
Tourism	Region III	Zambales	Tour Guide/Facilitator	Tour Guiding Services NC III
Manufacturing	Region III	Bulacan	Shipbuilding and Ship-Repair Related Skills	No Equivalent Qualification
Maritime	Region III	Zambales	Shipfitter	No Equivalent Qualification
Agriculture and Fishery	Region IV-A	Cavite	Inland Fishermen	No Equivalent Qualification
Agriculture, Forestry, and Fishery	Region IV-A	Rizal	Fishery Manager	No Equivalent Qualification
Agriculture, Forestry, and Fishery	Region IV-A	Rizal	Skilled Fishermen	Fish Capture NC II

Sector	Region	Province	Skills/Jobs/	Equivalent Qualification
Tourism (Hotel and Restaurant)	Region IV-A	Cavite	Agri-Tourism Specialist	No Equivalent Qualification
Tourism (Hotel and Restaurant)	Region IV-A	Cavite	Tourist Guide	Tour Guiding Services NC III
Tourism (Hotel and Restaurant)	Region IV-A	Cavite	Tourist Guide	Local Guiding Services NC II
Tourism (Hotel and Restaurant)	Region IV-A	Cavite	Tourism Planner	Tour Packaging (FIT AD HOC DOMESTIC) Services NC II
Tourism	Region IV-A	Rizal	Tourism Adviser	Tourism Promotion Services NC II
Tourism/Hotel Restaurant	Region IV-A	Laguna	Ships Caterer	Ship's Catering Services NC I
Tourism/Hotel Restaurant	Region IV-A	Laguna	Ships Caterer	Ships' Catering NC III (Ships' Cooks)
Construction	Region IV-A	Batangas	Mason	Masonry NC I
Construction	Region IV-A	Batangas	Mason	Masonry NC II
Construction	Region IV-A	Batangas	Mason	Masonry NC III
Construction	Region IV-A	Batangas	Welder	Flux Cored Arc Welding (FCAW) NC I
Construction	Region IV-A	Batangas	Welder	Flux Cored Arc Welding (FCAW) NC II
Construction	Region	Batangas	Welder	Flux Cored Arc Welding (FCAW) NC III

Sector	Region	Province	Skills/Jobs/	Equivalent Qualification
	IV-A			
Construction	Region IV-A	Batangas	Welder	Gas Metal Arc Welding (GMAW) NC I
Construction	Region IV-A	Batangas	Welder	Gas Metal Arc Welding (GMAW) NC II
Construction	Region IV-A	Batangas	Welder	Gas Metal Arc Welding (GMAW) NC III
Construction	Region IV-A	Batangas	Welder	Gas Tungsten Arc Welding (GTAW) NC II
Construction	Region IV-A	Batangas	Welder	Gas Tungsten Arc Welding (GTAW) NC IV
Construction	Region IV-A	Batangas	Welder	Gas Welding NC I
Construction	Region IV-A	Batangas	Welder	Gas Welding NC II
Construction	Region IV-A	Batangas	Welder	Shielded Metal Arc Welding (SMAW) NC I
Construction	Region IV-A	Batangas	Welder	Shielded Metal Arc Welding (SMAW) NC II
Construction	Region IV-A	Batangas	Welder	Shielded Metal Arc Welding (SMAW) NC III
Construction	Region IV-A	Batangas	Welder	Shielded Metal Arc Welding (SMAW) NC IV
Construction	Region IV-A	Batangas	Welder	Submerged Arc Welding (SAW) NC I

Sector	Region	Province	Skills/Jobs/	Equivalent Qualification
Construction	Region IV-A	Batangas	Welder	Submerged Arc Welding (SAW) NC II
Construction	Region IV-A	Batangas	Machinist	Machining NC I
Construction	Region IV-A	Batangas	Machinist	Machining NC II
Construction	Region IV-A	Batangas	Machinist	Machining NC III
Automotive Manufacturing	Region IV-A	Batangas	Machinist	Machining NC I
Automotive Manufacturing	Region IV-A	Batangas	Machinist	Machining NC II
Automotive Manufacturing	Region IV-A	Batangas	Machinist	Machining NC III
Automotive Manufacturing	Region IV-A	Batangas	CAD/CAM Operator	CAD/CAM Operator NC III
Agriculture, Forestry and Fishery	Region IV-B	Rombon	Fish Nursery Worker	Aquaculture (Grow-Out Operation) NC II
Agriculture, Forestry and Fishery	Region IV-B	Marinduque	Fishing	Fish Capture NC I
Agriculture, Forestry and Fishery	Region IV-B	Marinduque	Fisheries technician	Fish Capture NC I
Agriculture, Forestry and Fishery	Region IV-B	Marinduque	Fishing	Fish Capture NC II
Agriculture, Forestry and	Region	Marinduque	Fisheries technician	Fish Capture NC II

Sector	Region	Province	Skills/Jobs/	Equivalent Qualification
Fishery	IV-B			
Agriculture, Forestry and Fishery	Region IV-B	Palawan	Municipal Fisherman	Fish Capture NC II
Agriculture, Forestry and Fishery	Region IV-B	Palawan	Fishnet Maker / Repairman	Net Construction and Maintenance Level II
Tourism (Hotel and Restaurant)	Region IV-B	Rombon	Tourist Information Officer	Tourism Promotion Services NC II
Tourism (Hotel and Restaurant)	Region IV-B	Occidental Mindoro	Tourist Information Officer (LGU)	Tourism Promotion Services NC II
Tourism (Hotel and Restaurant)	Region IV-B	Marinduque	Tourism Promotion Services	Tourism Promotion Services NC II
Tourism (Hotel and Restaurant)	Region IV-B	Oriental Mindoro	Tour Guide	Tourism Promotion Services NC II
Tourism (Hotel and Restaurant)	Region IV-B	Palawan	Tour Packaging Staff Tour Operations Costing Staff Staff Assistant for Tours	Tour Packaging (FIT AD HOC DOMESTIC) Services NC II
Tourism (Hotel and Restaurant)	Region IV-B	Palawan	Tourist Information Officer Tourist Information Officer Travel Adviser/Consultant Concierge Agent	Tourism Promotion Services NC II
Agriculture, Forestry and Fishery	Region V	Camarines Sur	Fish Nursery Worker	Aquaculture NC II
Agriculture, Forestry and Fishery	Region V	Camarines Sur	Fish Feeder	Aquaculture NC II
Agriculture, Forestry and Fishery	Region V	Camarines Sur	Fish Feeder	Fish Capture NC I

Sector	Region	Province	Skills/Jobs/	Equivalent Qualification
Agriculture, Forestry and Fishery	Region V	Camarines Sur	Fish Feeder	Fish Capture NC II
Tourism (Hotel and Restaurant)	Region V	Masbate	ECO-TOURISM	Tourguiding NC II
Tourism (Hotel and Restaurant)	Region V	Masbate	SUSTAINABLE TOURISM TRAINING ON COASTAL ECOLOGY AND HABITAT PROTECTION	No Equivalent Qualification
Tourism (Hotel and Restaurant)	Region V	Albay	Tourism Promotion	Tourism Promotion NC II
Tourism	Region V	Camarines Norte	Tourism Promotion	Tourism Promotion Services NC II
Tourism (Hotel and Restaurant)	Region V	Masbate	TOURISM DESK OFFICER	TOURISM PROMOTION SERVICES NC II
Tourism (Hotel and Restaurant)	Region V	Masbate	POSOLOGIST (AGRI-TOURISM)	No Equivalent Qualification
Tourism (Hotel and Restaurant)	Region V	Masbate	TOURISM INSTRUCTOR	Trainers Methodology Level 1
Tourism (Hotel and Restaurant)	Region V	Masbate	TOURISM SITE PLANNER/ DEVELOPER	TOURISM PROMOTION SERVICES NC II
Metals and Engineering	Region V	Albay	Stainless Steel Welder	Gas Tungsten Arc Welding NC II
Construction	Region V	Albay	Helper Mason	Masonry NC I
Construction	Region V	Albay	Construction Helper	Masonry NC I
Construction	Region V	Albay	Finishing Mason	Masonry NC II
Construction	Region V	Albay	Pre-cast Fabricator	Masonry NC II
Construction	Region V	Albay	Industrial Metal Plate Welder	Shielded Metal Arc Welding (SMAW) NC I
Construction	Region V	Albay	Construction Welder	Shielded Metal Arc Welding (SMAW) NC I
Manufacturing	Region V	Albay	Welding Fabrication Assistant	Shielded Metal Arc Welding (SMAW) NC I

Sector	Region	Province	Skills/Jobs/	Equivalent Qualification
Manufacturing	Region V	Albay	Maintenance Welder	Shielded Metal Arc Welding (SMAW) NC I
Manufacturing	Region V	Albay	SMAW Plate Welder	Shielded Metal Arc Welding (SMAW) NC I
Manufacturing	Region V	Albay	Structural Steel Detailer	Shielded Metal Arc Welding (SMAW) NC I
Manufacturing	Region V	Albay	Metal Fabricator	Shielded Metal Arc Welding (SMAW) NC I
Manufacturing	Region V	Albay	welding fabricator assistant	Shielded Metal Arc Welding (SMAW) NC I
Manufacturing	Region V	Albay	Metalurgy Inspector	Shielded Metal Arc Welding (SMAW) NC I
Manufacturing	Region V	Albay	Welding inspector	Shielded Metal Arc Welding (SMAW) NC I
Manufacturing	Region V	Albay	Metal Fabricator	Shielded Metal Arc Welding (SMAW) NC I
Manufacturing	Region V	Albay	welding fabricator assistant	Shielded Metal Arc Welding (SMAW) NC I
Metals and Engineering	Region V	Albay	Plate Welder	Shielded Metal Arc Welding (SMAW) NC I
Metals and Engineering	Region V	Albay	Welding Shop Assistant	Shielded Metal Arc Welding (SMAW) NC I
Metals and Engineering	Region V	Albay	Welder Helper	Shielded Metal Arc Welding (SMAW) NC I
Manufacturing	Region V	Albay	Quality Control Welding Inspector	Shielded Metal Arc Welding (SMAW) NC II
Manufacturing	Region V	Albay	Pipe Welder	Shielded Metal Arc Welding (SMAW) NC II
Manufacturing	Region V	Albay	Maintenance Welding Technician	Shielded Metal Arc Welding (SMAW) NC II
Agriculture, Forestry and Fishery	Region VI	Aklan	Fishnet Maker	No Equivalent Qualification
Agriculture, Forestry and Fishery	Region VI	Negros Occidental	Fish Breeder	Aquaculture (Hatchery Operation) NC II
Agriculture, Forestry and	Region VI	Negros	Fish Feeder	Aquaculture (Hatchery Operation) NC II

Sector	Region	Province	Skills/Jobs/	Equivalent Qualification
Fishery		Occidental		
Agriculture, Forestry and Fishery	Region VI	Negros Occidental	Fish Processor	Fish Products Packaging NC II
Agriculture, Forestry and Fishery	Region VI	Iloilo	Fisherman/Aquaculture farmer/caretaker/aide	Aquaculture (Hatchery) Operation NC II
Agriculture, Forestry and Fishery	Region VI	Iloilo	Fish feeder	Fish Capture NC I
Tourism (Hotel and Restaurant)	Region VI	Aklan	Tourism Promotion Services	Tourism Promotion Services NC II
Tourism (Hotel and Restaurant)	Region VI	Capiz	Tourist Guide	Tourism Promotion NC III
Tourism (Hotel and Restaurant)	Region VI	Iloilo	Tourist Information Services Officer	Tourism Promotion Services NC II
Tourism (Hotel and Restaurant)	Region VI	Iloilo	Tourism Desk Officers	Tourism Promotion Services NC II
Tourism (Hotel and Restaurant)	Region VI	Iloilo	Tourist Guide	Tourism Promotion Services NC II
Construction	Region VI	Aklan	Shipbuilding and Ship Repair	No Equivalent Qualification
Construction	Region VI	Capiz	Ship builders	Gas Welding NC I
Construction	Region VI	Capiz	Ship builders	Gas Welding NC II
Construction	Region VI	Capiz	Ship builders	Gas Metal Arc Welding (GMAW) NC I
Construction	Region VI	Capiz	Ship builders	Gas Metal Arc Welding (GMAW) NC II
Construction	Region VI	Capiz	Ship builders	Gas Metal Arc Welding (GMAW) NC III
Construction	Region VI	Capiz	Ship builders	Gas Tungsten Arc Welding (GTAW) NC II
Construction	Region VI	Capiz	Ship builders	Gas Tungsten Arc Welding (GTAW) NC IV

Sector	Region	Province	Skills/Jobs/	Equivalent Qualification
Construction	Region VI	Capiz	Ship builders	Manual Metal Arc Welding (MMAW) NC I
Construction	Region VI	Capiz	Ship builders	Manual Metal Arc Welding (MMAW) NC II
Construction	Region VI	Capiz	Ship builders	Manual Metal Arc Welding (MMAW) NC III
Construction	Region VI	Capiz	Ship builders	Manual Metal Arc Welding (MMAW) NC IV
Construction	Region VI	Iloilo	Shipbuilder	No Equivalent Qualification
Tourism (Hotel and Restaurant)	Region VI	Iloilo	Ship's Cook	Ship's Catering Services NC III
Creative	Region VI	Iloilo	Steel Worker	Shielded Metal Arc Welding NC I
Creative	Region VI	Iloilo	Carpenter	Carpentry NC II
Creative	Region VI	Iloilo	Carpenter	Carpentry NC III
Transportation & Logistics	Region VI	Iloilo	Welder	Gas Welding NC II
Transportation & Logistics	Region VI	Iloilo	Welder	Gas Welding NC I
Agriculture, Forestry and Fishery	Region VI	Iloilo	Carpenter/Furniture Maker/Finisher/Traditional Bahay Kubo Manufacturer	Carpentry NC II
Agriculture, Forestry and Fishery	Region VI	Iloilo	Carpenter/Furniture Maker/Finisher/Traditional Bahay Kubo Manufacturer	Carpentry NC III
Agriculture, Forestry and Fishery	Region VI	Iloilo	Experienced Carpenter	Carpentry NC II
Agriculture, Forestry and Fishery	Region VI	Iloilo	Experienced Carpenter	Carpentry NC III
Agriculture, Forestry and Fishery	Region VI	Iloilo	Skilled Mason	Masonry NC I

Sector	Region	Province	Skills/Jobs/	Equivalent Qualification
Agriculture, Forestry and Fishery	Region VI	Iloilo	Skilled Mason	Masonry NC II
Agriculture, Forestry and Fishery	Region VI	Iloilo	Skilled Mason	Masonry NC III
Construction	Region VI	Iloilo	Mason	Masonry NC I
Construction	Region VI	Iloilo	Mason	Masonry NC II
Construction	Region VI	Iloilo	Mason	Masonry NC III
Construction	Region VI	Iloilo	Plate Welder (SMAW)	Shielded Metal Arc Welding (SMAW) NC I
Construction	Region VI	Iloilo	SMAW Welder	Shielded Metal Arc Welding (SMAW) NC II
Construction	Region VI	Iloilo	Pipe Welder (SMAW)	Shielded Metal Arc Welding (SMAW) NC III
Construction	Region VI	Iloilo	Plate Welder (SMAW-Alloy Steel)	Shielded Metal Arc Welding (SMAW) NC III
Construction	Region VI	Iloilo	Plate Welder (GMAW)	Gas Metal Arc Welding (GMAW) NC I
Construction	Region VI	Iloilo	Pipe Welder (GMAW)	Gas Metal Arc Welding (GMAW) NC II
Construction	Region VI	Iloilo	GMAW Welder (Alloy Plate)	Gas Metal Arc Welding (GMAW) NC III
Construction	Region VI	Iloilo	GMAW Welder (Alloy Pipe)	Gas Metal Arc Welding (GMAW) NC III
Construction	Region VI	Iloilo	GMAW Welder (Alloy Pipe)	Gas Welding NC I
Construction	Region VI	Iloilo	GMAW Welder (Alloy Pipe)	Gas Welding NC II
Construction	Region VI	Iloilo	GMAW Welder (Alloy Pipe)	Gas Tungsten Arc Welding NC II
Construction	Region VI	Iloilo	GMAW Welder (Alloy Pipe)	Gas Tungsten Arc Welding NC IV
Construction	Region VI	Iloilo	GMAW Welder (Alloy Pipe)	Flux Cored Arc Welding NC I

Sector	Region	Province	Skills/Jobs/	Equivalent Qualification
Construction	Region VI	Iloilo	GMAW Welder (Alloy Pipe)	Flux Cored Arc Welding NC II
Construction	Region VI	Iloilo	GMAW Welder (Alloy Pipe)	Flux Cored Arc Welding NC III
Construction	Region VI	Iloilo	Rough and Finishing Carpenter	Carpentry NC II
Construction	Region VI	Iloilo	Specialized Carpenter	Carpentry NC III
Agriculture	Region VII	Cebu	Skills on how to operate agri-fishery equipment and machineries	Agricultural Machinery Servicing (4-Wheel Tractor) NC III
Agriculture	Region VII	Cebu	Skills on how to operate agri-fishery equipment and machineries	Agricultural Machinery Operations NC II
Agriculture	Region VII	Cebu	Skills on how to operate agri-fishery equipment and machineries	Rice Machinery Operations NC II
Tourism	Region VII	Cebu	Fishmongers	Slaughtering Operations NC II
Agriculture	Region VII	Negros Oriental	Fisherman and Assistant	Fish Capture NC I
Agriculture	Region VII	Negros Oriental	Fisherman and Assistant	Fish Capture NC II
Agriculture, Forestry, and Fishery	Region VII	Siquijor	Fisherman	Fish Capture NC II
Tourism	Region VII	Bohol	Tourism Promotions Services (Online travel advisor, online tourism promotional material developer)	Tourism Promotion Services NC II
Tourism	Region VII	Bohol	Tourism Promotions Services (Online travel advisor, online tourism promotional material developer)	Tour Packaging NC II

Sector	Region	Province	Skills/Jobs/	Equivalent Qualification
Tourism	Region VII	Bohol	Tour Guiding, Local Guiding Services (Tour guide-foreign language other than English)	Tour Guiding Services NC II
Tourism	Region VII	Bohol	Tour Guiding, Local Guiding Services (Tour guide-foreign language other than English)	Local Guiding Services NC II
Tourism	Region VII	Cebu	Tour guide	Tour Guiding NC II
Tourism	Region VII	Negros Oriental	Tourist Guide / on Call Driver	Driving NC II
Tourism	Region VII	Negros Oriental	Tour Guide	Local Guiding Servicing NC II
Tourism	Region VII	Negros Oriental	Tourism Officer	Tourism Promotion Services NC II
Tourism	Region VII	Negros Oriental	Tour Package Coordinator / Planner	Tour Packaging NC II
Tourism	Region VII	Siquijor	Tourism Promotion Staff	Tourism Promotion Services NC II
Tourism	Region VII	Siquijor	Tourism officer	Tourism Promotion Services NC II
Tourism	Region VII	Siquijor	Tourist information center manager	Tourism Promotion Services NC II
Tourism	Region VII	Siquijor	Tour/Travel Guide	Tour Packaging (FIT AD HOC DOMESTIC) Services NC II
Tourism	Region VII	Siquijor	Tour/Travel Guide	Travel Services NC II
Tourism	Region	Siquijor	Tourist guide	Tour Packaging (FIT AD HOC DOMESTIC)

Sector	Region	Province	Skills/Jobs/	Equivalent Qualification
	VII			Services NC II
Tourism	Region VII	Siquijor	Tourist guide	Travel Services NC II
Tourism	Region VII	Siquijor	Tour organizer	Tour Packaging (FIT AD HOC DOMESTIC) Services NC II
Maritime	Region VII	Cebu	Stewards/Ships' Deck Crew	Ships Catering Services NC I
Maritime	Region VII	Cebu	Stewards/Ships' Deck Crew	Ships Catering Services NC III
Tourism	Region VII	Cebu	Crew ship	Ships Catering Services NC I
Tourism	Region VII	Cebu	Crew ship	Ships Catering Services NC III
Automotive, Transportation & Logistics	Region VII	Cebu	Engine Welders	Shielded Metal Arc Welding (SMAW) NC I
Automotive, Transportation & Logistics	Region VII	Cebu	Engine Welders	Manual Metal Arc Welding (MMAW) NC I
Construction	Region VII	Cebu	Masonry	Masonry NC I
Construction	Region VII	Cebu	Masonry	Masonry NC II
Construction	Region VII	Cebu	Masonry	Masonry NC III
Construction	Region VII	Cebu	Welding (SMAW)	Manual Metal Arc Welding (MMAW) NC I

Sector	Region	Province	Skills/Jobs/	Equivalent Qualification
Construction	Region VII	Cebu	Welding (SMAW)	Shielded Metal Arc Welding (SMAW) NC I
Construction	Region VII	Cebu	Welding (SMAW)	Manual Metal Arc Welding (MMAW) NC II
Construction	Region VII	Cebu	Welding (SMAW)	Shielded Metal Arc Welding (SMAW) NC II
Construction	Region VII	Cebu	Welding (SMAW)	Manual Metal Arc Welding (MMAW) NC III
Construction	Region VII	Cebu	Welding (SMAW)	Manual Metal Arc Welding (MMAW) NC IV
Construction	Region VII	Cebu	Welding (SMAW)	Shielded Metal Arc Welding (SMAW) NC III
Construction	Region VII	Cebu	Welding (FCAW)	Flux Cored Arc Welding (FCAW) NC I
Construction	Region VII	Cebu	Welding (FCAW)	Flux Cored Arc Welding (FCAW) NC II
Construction	Region VII	Cebu	Welding (FCAW)	Flux Cored Arc Welding (FCAW) NC III
Construction	Region VII	Cebu	Welding (GMAW)	Gas Metal Arc Welding (GMAW) NC I
Construction	Region VII	Cebu	Welding (GMAW)	Gas Metal Arc Welding (GMAW) NC II
Construction	Region VII	Cebu	Welding (GMAW)	Gas Metal Arc Welding (GMAW) NC III
Construction	Region	Cebu	Welding (GTAW)	Gas Tungsten Arc Welding (GTAW) NC II

Sector	Region	Province	Skills/Jobs/	Equivalent Qualification
	VII			
Construction	Region VII	Cebu	Welding (GTAW)	Gas Tungsten Arc Welding (GTAW) NC IV
Construction	Region VII	Cebu	Welding (GAS)	Gas Welding NC I
Construction	Region VII	Cebu	Welding (GAS)	Gas Welding NC II
Construction	Region VII	Cebu	Welding (SAW)	Submerged Arc Welding (SAW) NC I
Construction	Region VII	Cebu	Welding (SAW)	Submerged Arc Welding (SAW) NC II
Construction	Region VII	Cebu	CAD	CAD/CAM Operation NC III
Construction	Region VII	Cebu	Rigger	Rigging NC I
Furniture and Fixtures	Region VII	Cebu	CAD Operators	CAD/CAM Operation NC III
Metals and Engineering	Region VII	Cebu	Welders and flame cutters	Shielded Metal Arc Welding (SMAW) NC II
Metals and Engineering	Region VII	Cebu	Welders and flame cutters	Gas Metal Arc Welding (GMAW) NC II
Metals and Engineering	Region VII	Cebu	Welders and flame cutters	Flux cord Arc Welding (FCAW) NC II
Metals and Engineering	Region VII	Cebu	Welders and flame cutters	Gas Welding NC II

Sector	Region	Province	Skills/Jobs/	Equivalent Qualification
Metals and Engineering	Region VII	Cebu	Welders and flame cutters	Gas Tungsten Arc Welding (GTAW) NC II
Metals and Engineering	Region VII	Cebu	Metal processing plant operators	Shielded Metal Arc Welding (SMAW)
Metals and Engineering	Region VII	Cebu	Metal processing plant operators	Gas Metal Arc Welding (GMAW) NC II
Metals and Engineering	Region VII	Cebu	Metal processing plant operators	Flux cord Arc Welding (FCAW) NC II
Metals and Engineering	Region VII	Cebu	Metal processing plant operators	Gas Welding NC II
Metals and Engineering	Region VII	Cebu	Metal processing plant operators	Gas Tungsten Arc Welding (GTAW) NC II
Metals and Engineering	Region VII	Cebu	Sheet metal workers	Shielded Metal Arc Welding (SMAW) NC II
Metals and Engineering	Region VII	Cebu	Sheet metal workers	Gas Welding & GTAW) NC II
Metals and Engineering	Region VII	Cebu	Sheet metal workers	Gas Metal Arc Welding (GMAW) NC II
Metals and Engineering	Region VII	Cebu	Sheet metal workers	Flux cord Arc Welding (FCAW) NC II
Metals and Engineering	Region VII	Cebu	Sheet metal workers	Gas Welding NC II
Metals and Engineering	Region VII	Cebu	Sheet metal workers	Gas Tungsten Arc Welding (GTAW) NC II
Metals and Engineering	Region	Cebu	Metal polishers, wheel grinders and tool	Shielded Metal Arc Welding (SMAW) NC II

Sector	Region	Province	Skills/Jobs/	Equivalent Qualification
	VII			
Metals and Engineering	Region VII	Cebu	sharpeners	Gas Welding & GTAW) NC II
Metals and Engineering	Region VII	Cebu	sharpeners	Gas Metal Arc Welding (GMAW) NC II
Metals and Engineering	Region VII	Cebu	sharpeners	Flux cord Arc Welding (FCAW) NC II
Metals and Engineering	Region VII	Cebu	sharpeners	Gas Welding NC II
Metals and Engineering	Region VII	Cebu	sharpeners	Gas Tungsten Arc Welding (GTAW) NC II
Metals and Engineering	Region VII	Cebu	Pipefitters/TIG Welders	Gas Tungsten Arc Welding (GTAW) NC II
Metals and Engineering	Region VII	Cebu	Pipefitters/TIG Welders	Gas Tungsten Arc Welding (GTAW) NC IV
Manufacturing	Region VII	Cebu	Engine Welders	Shielded Metal Arc Welding (SMAW) NC I
Manufacturing	Region VII	Cebu	Engine Welders	Shielded Metal Arc Welding (SMAW) NC II
Manufacturing	Region VII	Cebu	Engine Welders	Shielded Metal Arc Welding (SMAW) NC III
Manufacturing	Region VII	Cebu	Engine Welders	Shielded Metal Arc Welding (SMAW) NC IV
Manufacturing	Region VII	Cebu	Engine Welders	Manual Metal Arc Welding (MMAW) NC I

Sector	Region	Province	Skills/Jobs/	Equivalent Qualification
Manufacturing	Region VII	Cebu	Engine Welders	Manual Metal Arc Welding (MMAW) NC II
Manufacturing	Region VII	Cebu	Engine Welders	Manual Metal Arc Welding (MMAW) NC III
Manufacturing	Region VII	Cebu	Engine Welders	Manual Metal Arc Welding (MMAW) NC IV
Manufacturing	Region VII	Cebu	Welders (GMAW)	Gas Metal Arc Welding (GMAW) NC I
Manufacturing	Region VII	Cebu	Welders (GMAW)	Gas Metal Arc Welding (GMAW) NC II
Manufacturing	Region VII	Cebu	Welders (GMAW)	Gas Metal Arc Welding (GMAW) NC III
Manufacturing	Region VII	Cebu	TIG Welders	Gas Tungsten Arc Welding (GTAW) NC II
Manufacturing	Region VII	Cebu	TIG Welders	Gas Tungsten Arc Welding (GTAW) NC IV
Manufacturing	Region VII	Cebu	Fabricators	Shielded Metal Arc Welding (SMAW) NC I
Manufacturing	Region VII	Cebu	Fabricators	Shielded Metal Arc Welding (SMAW) NC II
Manufacturing	Region VII	Cebu	Fabricators	Shielded Metal Arc Welding (SMAW) NC III
Manufacturing	Region VII	Cebu	Fabricators	Shielded Metal Arc Welding (SMAW) NC IV
Manufacturing	Region	Cebu	Fabricators	Manual Metal Arc Welding (MMAW) NC I

Sector	Region	Province	Skills/Jobs/	Equivalent Qualification
	VII			
Manufacturing	Region VII	Cebu	Fabricators	Manual Metal Arc Welding (MMAW) NC II
Manufacturing	Region VII	Cebu	Fabricators	Manual Metal Arc Welding (MMAW) NC III
Manufacturing	Region VII	Cebu	Fabricators	Manual Metal Arc Welding (MMAW) NC IV
Manufacturing	Region VII	Cebu	Fabricators	Flux Cored Arc Welding (FCAW) NC I
Manufacturing	Region VII	Cebu	Fabricators	Flux Cored Arc Welding (FCAW) NC II
Manufacturing	Region VII	Cebu	Fabricators	Flux Cored Arc Welding (FCAW) NC III
Manufacturing	Region VII	Cebu	Gas Metal Arc Welding for Aluminum	Gas Metal Arc Welding (GMAW) NC
Manufacturing	Region VII	Cebu	Gas Metal Arc Welding for Aluminum	Gas Metal Arc Welding (GMAW) NC II
Manufacturing	Region VII	Cebu	Gas Metal Arc Welding for Aluminum	Gas Metal Arc Welding (GMAW) NC III
Manufacturing	Region VII	Cebu	CAD Operators	CAD/CAM Operation NC III
Manufacturing	Region VII	Cebu	Welders	Shielded Metal Arc Welding (SMAW) NC I
Manufacturing	Region VII	Cebu	Welders	Shielded Metal Arc Welding (SMAW) NC II

Sector	Region	Province	Skills/Jobs/	Equivalent Qualification
Manufacturing	Region VII	Cebu	Welders	Shielded Metal Arc Welding (SMAW) NC III
Manufacturing	Region VII	Cebu	Welders	Shielded Metal Arc Welding (SMAW) NC IV
Manufacturing	Region VII	Cebu	Welders	Manual Metal Arc Welding (MMAW) NC I
Manufacturing	Region VII	Cebu	Welders	Manual Metal Arc Welding (MMAW) NC II
Manufacturing	Region VII	Cebu	Welders	Manual Metal Arc Welding (MMAW) NC III
Manufacturing	Region VII	Cebu	Welders	Manual Metal Arc Welding (MMAW) NC IV
Manufacturing	Region VII	Cebu	Welders	Gas Metal Arc Welding (GMAW) NC I
Manufacturing	Region VII	Cebu	Welders	Gas Metal Arc Welding (GMAW) NC II
Manufacturing	Region VII	Cebu	Welders	Gas Metal Arc Welding (GMAW) NC III
Manufacturing	Region VII	Cebu	Welders	Flux Cored Arc Welding (FCAW) NC I
Manufacturing	Region VII	Cebu	Welders	Flux Cored Arc Welding (FCAW) NC II
Manufacturing	Region VII	Cebu	Welders	Flux Cored Arc Welding (FCAW) NC III
Manufacturing	Region	Cebu	Welders	Gas Tungsten Arc Welding (GTAW) NC II

Sector	Region	Province	Skills/Jobs/	Equivalent Qualification
	VII			
Manufacturing	Region VII	Cebu	Welders	Gas Tungsten Arc Welding (GTAW) NC IV
Manufacturing	Region VII	Cebu	Welders	Gas Welding NC I
Manufacturing	Region VII	Cebu	Welders	Gas Welding NC II
Manufacturing	Region VII	Cebu	Welders	Submerged Arc Welding (SAW) NC I
Manufacturing	Region VII	Cebu	Welders	Submerged Arc Welding (SAW) NC II
Manufacturing	Region VII	Cebu	Metal Fabricators	Shielded Metal Arc Welding (SMAW) NC I
Manufacturing	Region VII	Cebu	Metal Workers	Shielded Metal Arc Welding (SMAW) NC I
Manufacturing	Region VII	Cebu	Metal Workers	Shielded Metal Arc Welding (SMAW) NC II
Manufacturing	Region VII	Cebu	Metal Workers	Shielded Metal Arc Welding (SMAW) NC III
Manufacturing	Region VII	Cebu	Metal Workers	Shielded Metal Arc Welding (SMAW) NC IV
Manufacturing	Region VII	Cebu	Metal Workers	Manual Metal Arc Welding (MMAW) NC I
Manufacturing	Region VII	Cebu	Metal Workers	Manual Metal Arc Welding (MMAW) NC II

Sector	Region	Province	Skills/Jobs/	Equivalent Qualification
Manufacturing	Region VII	Cebu	Metal Workers	Manual Metal Arc Welding (MMAW) NC III
Manufacturing	Region VII	Cebu	Metal Workers	Manual Metal Arc Welding (MMAW) NC IV
Manufacturing	Region VII	Cebu	Metal Workers	Gas Metal Arc Welding (GMAW) NC I
Manufacturing	Region VII	Cebu	Metal Workers	Gas Metal Arc Welding (GMAW) NC II
Manufacturing	Region VII	Cebu	Metal Workers	Gas Metal Arc Welding (GMAW) NC III
Manufacturing	Region VII	Cebu	Metal Workers	Flux Cored Arc Welding (FCAW) NC I
Manufacturing	Region VII	Cebu	Metal Workers	Flux Cored Arc Welding (FCAW) NC II
Manufacturing	Region VII	Cebu	Metal Workers	Flux Cored Arc Welding (FCAW) NC III
Manufacturing	Region VII	Cebu	Metal Workers	Gas Tungsten Arc Welding (GTAW) NC II
Manufacturing	Region VII	Cebu	Metal Workers	Gas Tungsten Arc Welding (GTAW) NC IV
Manufacturing	Region VII	Cebu	Metal Workers	Gas Welding NC I
Manufacturing	Region VII	Cebu	Metal Workers	Gas Welding NC II
Manufacturing	Region	Cebu	Metal Workers	Submerged Arc Welding (SAW) NC I

Sector	Region	Province	Skills/Jobs/	Equivalent Qualification
	VII			
Manufacturing	Region VII	Cebu	Metal Workers	Submerged Arc Welding (SAW) NC II
Manufacturing	Region VII	Cebu	Metal Workers	Machining NC I
Manufacturing	Region VII	Cebu	Metal Workers	Machining NC II
Manufacturing	Region VII	Cebu	Metal Workers	Machining NC III
Manufacturing	Region VII	Cebu	Machine Operators	Machining NC I
Manufacturing	Region VII	Cebu	Machine Operators	Machining NC II
Manufacturing	Region VII	Cebu	Machine Operators	Machining NC III
Manufacturing	Region VII	Cebu	Welder	Shielded Metal Arc Welding (SMAW) NC I
Manufacturing	Region VII	Cebu	Welder	Shielded Metal Arc Welding (SMAW) NC II
Manufacturing	Region VII	Cebu	Welder	Shielded Metal Arc Welding (SMAW) NC III
Manufacturing	Region VII	Cebu	Welder	Shielded Metal Arc Welding (SMAW) NC IV
Manufacturing	Region VII	Cebu	Welder	Manual Metal Arc Welding (MMAW) NC I

Sector	Region	Province	Skills/Jobs/	Equivalent Qualification
Manufacturing	Region VII	Cebu	Welder	Manual Metal Arc Welding (MMAW) NC II
Manufacturing	Region VII	Cebu	Welder	Manual Metal Arc Welding (MMAW) NC III
Manufacturing	Region VII	Cebu	Welder	Manual Metal Arc Welding (MMAW) NC IV
Manufacturing	Region VII	Cebu	Welder	Gas Metal Arc Welding (GMAW) NC I
Manufacturing	Region VII	Cebu	Welder	Gas Metal Arc Welding (GMAW) NC II
Manufacturing	Region VII	Cebu	Welder	Gas Metal Arc Welding (GMAW) NC III
Manufacturing	Region VII	Cebu	Welder	Flux Cored Arc Welding (FCAW) NC I
Manufacturing	Region VII	Cebu	Welder	Flux Cored Arc Welding (FCAW) NC II
Manufacturing	Region VII	Cebu	Welder	Flux Cored Arc Welding (FCAW) NC III
Manufacturing	Region VII	Cebu	Welder	Gas Tungsten Arc Welding (GTAW) NC II
Manufacturing	Region VII	Cebu	Welder	Gas Tungsten Arc Welding (GTAW) NC IV
Manufacturing	Region VII	Cebu	Welder	Gas Welding NC I
Manufacturing	Region	Cebu	Welder	Gas Welding NC II

Sector	Region	Province	Skills/Jobs/	Equivalent Qualification
	VII			
Manufacturing	Region VII	Cebu	Welder	Submerged Arc Welding (SAW) NC I
Manufacturing	Region VII	Cebu	Welder	Submerged Arc Welding (SAW) NC II
Manufacturing	Region VII	Cebu	Machine Operators	Machining NC I
Manufacturing	Region VII	Cebu	Machine Operators	Machining NC II
Manufacturing	Region VII	Cebu	Machine Operators	Machining NC III
Manufacturing	Region VII	Cebu	Basic Measurements and Calculations	Machining NC I
Manufacturing	Region VII	Cebu	Basic Measurements and Calculations	Machining NC II
Manufacturing	Region VII	Cebu	Basic Measurements and Calculations	Machining NC III
Manufacturing	Region VII	Cebu	Basic Machine Maintenance (Identification of problem areas and defects)	Machining NC I
Manufacturing	Region VII	Cebu	Basic Machine Maintenance (Identification of problem areas and defects)	Machining NC II
Manufacturing	Region VII	Cebu	Basic Machine Maintenance (Identification of problem areas and defects)	Machining NC III
Manufacturing	Region VII	Cebu	Precision Machining	Machining NC I

Sector	Region	Province	Skills/Jobs/	Equivalent Qualification
Manufacturing	Region VII	Cebu	Precision Machining	Machining NC II
Manufacturing	Region VII	Cebu	Precision Machining	Machining NC III
Manufacturing	Region VII	Cebu	Precision Measurements	Machining NC I
Manufacturing	Region VII	Cebu	Precision Measurements	Machining NC II
Manufacturing	Region VII	Cebu	Precision Measurements	Machining NC III
Manufacturing	Region VII	Cebu	Shaft alignment	Machining NC I
Manufacturing	Region VII	Cebu	Shaft alignment	Machining NC II
Manufacturing	Region VII	Cebu	Shaft alignment	Machining NC III
Manufacturing	Region VII	Cebu	Mason	Masonry NC I
Manufacturing	Region VII	Cebu	Mason	Masonry NC II
Manufacturing	Region VII	Cebu	Mason	Masonry NC III
Agriculture, Forestry and Fishery	Region VIII	Samar	Fish Cage Worker	No Equivalent Qualification
Agriculture, Forestry and	Region	Samar	Fishpond Worker	No Equivalent Qualification

Sector	Region	Province	Skills/Jobs/	Equivalent Qualification
Fishery	VIII			
Agriculture	Region VIII	Biliran	Fish Cage Makers	No Equivalent Qualification
Tourism	Region VIII	Samar	Local Tour Guides	Local Guiding Services NC II
Tourism	Region VIII	Samar	Farm Tour Guides	No Equivalent Qualification
Tourism	Region VIII	Samar	Tour Guides	Tour Guiding Services NC III
Tourism	Region VIII	Biliran	Tour Guides	Tour Guiding Services NC II
Construction	Region VIII	Leyte	Carpenter	Carpentry NC II
Construction	Region VIII	Leyte	Mason	Masonry NC I
Construction	Region VIII	Leyte	Mason	Masonry NC II
Metals and Engineering	Region VIII	Leyte	Welder	Shielded Metal Arc Welding NC I
Metals and Engineering	Region VIII	Leyte	Welder	Shielded Metal Arc Welding NC II
Metals and Engineering	Region VIII	Leyte	Welder	Gas Tungsten Arc Welding(GTAW) NC II
Metals and Engineering	Region VIII	Leyte	Machinist/Milling Machine Operator/Lathe Operator	Machining NC II

Sector	Region	Province	Skills/Jobs/	Equivalent Qualification
Agriculture, Forestry and Fishery	Region IX	Zamboanga City-Isabela City District	Fish Net Mender	Fishing Gear Repair and Maintenance NC III
Agriculture, Forestry and Fishery	Region IX	Zamboanga City-Isabela City District	Fish Net Mender	Net Construction and Maintenance
Agriculture, Forestry and Fishery	Region IX	Zamboanga City-Isabela City District	Fishermen	Fish Capture NC I
Agriculture, Forestry and Fishery	Region IX	Zamboanga City-Isabela City District	Fishermen	Fish Capture NC II
Agriculture, Forestry and Fishery	Region IX	Zamboanga City-Isabela City District	Fishermen	Aquaculture NC II
Agriculture, Forestry and Fishery	Region IX	Zamboanga City-Isabela City District	Fishermen	Sonar Fishing Operation Level III
Agriculture, Forestry and Fishery	Region IX	Zamboanga City-Isabela City District	Fishing Boat Operators	Fish Capture NC I
Agriculture, Forestry and Fishery	Region IX	Zamboanga City-Isabela City District	Fishing Boat Operators	Fish Capture NC II
Agriculture, Forestry and Fishery	Region IX	Zamboanga City-Isabela City District	Fishing Boat Operators	Aquaculture NC II
Agriculture, Forestry and Fishery	Region IX	Zamboanga City-Isabela City District	Fishing Boat Operators	Sonar Fishing Operation Level III

Sector	Region	Province	Skills/Jobs/	Equivalent Qualification
Fishery		City-Isabela City District		
Agriculture, Forestry and Fishery	Region IX	Zamboanga City-Isabela City District	Fishing Gear Maintenance	Fishing Gear Repair and Maintenance NC III
Agriculture, Forestry and Fishery	Region IX	Zamboanga Del Norte	Fish Feed Formulators	Aquaculture NC I
Agriculture, Forestry and Fishery	Region IX	Zamboanga Del Norte	Fish Feed Formulators	Aquaculture NC II
Agriculture, Forestry and Fishery	Region IX	Zamboanga Del Norte	Fish Feeders/Harvesters	Aquaculture NC I
Agriculture, Forestry and Fishery	Region IX	Zamboanga Del Norte	Fish Feeders/Harvesters	Aquaculture NC II
Agriculture, Forestry and Fishery	Region IX	Zamboanga Del Norte	Fish Nursery Operators	Aquaculture NC I
Agriculture, Forestry and Fishery	Region IX	Zamboanga Del Norte	Fish Nursery Operators	Aquaculture NC II
Agriculture, Forestry and Fishery	Region IX	Zamboanga Del Norte	Fish Packers/Labelers	Fish Products Packaging NC II
Agriculture, Forestry and Fishery	Region IX	Zamboanga Del Norte	Fish Pod/Fish Cage Farmers	Aquaculture NC I
Agriculture, Forestry and Fishery	Region IX	Zamboanga Del Norte	Fish Pod/Fish Cage Farmers	Aquaculture NC II
Agriculture, Forestry and Fishery	Region IX	Zamboanga Del Norte	Fishermen	Fish Capture NC I

Sector	Region	Province	Skills/Jobs/	Equivalent Qualification
Agriculture, Forestry and Fishery	Region IX	Zamboanga Del Norte	Fishermen	Fish Capture NC II
Agriculture, Forestry and Fishery	Region IX	Zamboanga Del Norte	Fishermen	Aquaculture NC II
Agriculture, Forestry and Fishery	Region IX	Zamboanga Del Norte	Fishermen	Sonar Fishing Operation Level III
Agriculture	Region IX	Zamboanga Del Sur	Fish Farmers/Fishpond Technician	Fish Capture NC I
Agriculture	Region IX	Zamboanga Del Sur	Fish Farmers/Fishpond Technician	Fish Capture NC II
Agriculture	Region IX	Zamboanga Del Sur	Fish Farmers/Fishpond Technician	Aquaculture NC II
Agriculture, Forestry and Fishery	Region IX	Zamboanga Sibugay	Fish Farmers/Fishpond Technician	Fish Capture NC I
Agriculture, Forestry and Fishery	Region IX	Zamboanga Sibugay	Fish Farmers/Fishpond Technician	Fish Capture NC II
Agriculture, Forestry and Fishery	Region IX	Zamboanga Sibugay	Fish Farmers/Fishpond Technician	Aquaculture NC II
Agriculture, Forestry and Fishery	Region IX	Zamboanga Sibugay	Fishermen	Fish Capture NC I
Agriculture, Forestry and Fishery	Region IX	Zamboanga Sibugay	Fishermen	Fish Capture NC II
Agriculture, Forestry and Fishery	Region IX	Zamboanga Sibugay	Fishermen	Aquaculture NC II
Agriculture,	Region IX	Zamboanga	Fishermen	Sonar Fishing Operation Level III

Sector	Region	Province	Skills/Jobs/	Equivalent Qualification
Forestry and Fishery		Sibugay		
Agriculture, Forestry and Fishery	Region IX	Zamboanga Sibugay	Fishery Laborer	Fish Capture NC I
Agriculture, Forestry and Fishery	Region IX	Zamboanga Sibugay	Fishery Laborer	Fish Capture NC II
Agriculture, Forestry and Fishery	Region IX	Zamboanga Sibugay	Fishery Laborer	Aquaculture NC II
Agriculture, Forestry and Fishery	Region IX	Zamboanga Sibugay	Fishery Laborer	Sonar Fishing Operation Level III
Construction	Region X	Misamis Oriental	Mason	Masonry NC II
Construction	Region X	Misamis Oriental	Carpenter	Carpentry NC II
Metals and Engineering	Region X	Misamis Oriental	Welder	Shielded Metal Arc Welding NC I and NC II / Gas Tungsten Arc Welding (GTAW) NC II
Agriculture, Forestry and Fishery	Region X	Lanao del Norte	Fish Carrier	No Equivalent Qualification
Agriculture, Forestry and Fishery	Region X	Lanao del Norte	Fisheries	Aquaculture NC II
Tourism (Hotel and Restaurant)	Region X	Camiguin	Diving Skills	No Equivalent Qualification
Tourism (Hotel and Restaurant)	Region X	Misamis Oriental	Local Dive Guide	No Equivalent Qualification
Maritime	Region XI	Davao City/Sur	Messman	Ships' Catering Services NC II

Sector	Region	Province	Skills/Jobs/	Equivalent Qualification
Maritime	Region XI	Davao City/Sur	Ship's cook	Ships' Catering NC III (Ships' Cooks)
Tourism	Region XI	Davao City/Sur	Ship's cook	Ships' Catering NC III (Ships' Cooks)
Agriculture, Forestry and Fishery	Region XI	Davao de Oro	Aquaculture Skills Fisherfolks	Aquaculture (Tilapia Culture) NC II
Agriculture, Forestry and Fishery	Region XI	Davao de Oro	Aquaculture Skills Fisherfolks	Aquaculture NC II
Agriculture, Forestry and Fishery	Region XI	Davao de Oro	Fisherfolk Aquaculture Worker	Fish Capture NC I
Agriculture, Forestry and Fishery	Region XI	Davao de Oro	Fisherfolk Aquaculture Worker	Fish Capture NC II
Agriculture, Forestry and Fishery	Region XI	Davao del Norte	Aquaculture (hito, tilapia and ornamental fish)	Aquaculture NC II
Agriculture, Forestry and Fishery	Region XI	Davao del Norte	Ornamental Fish Producer	Aquaculture NC II
Agriculture, Forestry and Fishery	Region XI	Davao Occidental	Fish Grower	Aquaculture (Grow-out Operation) NC II
Agriculture, Forestry and Fishery	Region XI	Davao Occidental	Fish Grower	Aquaculture (Hatchery Operation) NC II
Agriculture, Forestry and Fishery	Region XI	Davao Occidental	Fish Grower	Aquaculture (Tilapia Culture) NC II
Agriculture, Forestry and Fishery	Region XI	Davao Occidental	Fish Grower	Aquaculture NC II (Superseded)
Agriculture, Forestry and	Region XI	Davao	Fisherman	Aquaculture NC II

Sector	Region	Province	Skills/Jobs/	Equivalent Qualification
Fishery		Occidental		
Agriculture, Forestry and Fishery	Region XI	Davao Occidental	Fisherman	Fish Capture NC I
Agriculture, Forestry and Fishery	Region XI	Davao Occidental	Fisherman	Fish Capture NC II
Agriculture, Forestry and Fishery	Region XI	Davao Oriental	Fish Nursery Worker	No Equivalent Qualification
Tourism	Region XI	Davao de Oro	Tourism Information Officer/ Tourism Desk Officer	Tourism Promotion Services NC II
Tourism	Region XI	Davao del Norte	Local Tour Guide	Local Guiding Services NC II
Tourism	Region XI	Davao Occidental	Tour Guide	Tour Guiding Services NC III
Tourism	Region XI	Davao Occidental	Tour Guide	Tour Packaging (FIT AD HOC DOMESTIC) Services NC II
Tourism	Region XI	Davao Occidental	Tour Guide	Tourism Promotion Services NC II
Tourism	Region XI	Davao Oriental	Tour Guides	Local Guiding Services NC II
Tourism	Region XI	Davao Oriental	Tour Guides	Tour Guiding Services NC III
Tourism	Region XI	Davao Oriental	Tourist Information Officer	Tourism Promotion Services NC II
Maritime	Region XI	Davao City/Sur	Ship's cook	Ships' Catering NC III (Ships' Cooks)

Sector	Region	Province	Skills/Jobs/	Equivalent Qualification
Tourism	Region XI	Davao City/Sur	Ship's cook	Ships' Catering NC III (Ships' Cooks)
Construction	Region XI	Davao City/Sur	Construction Helper	Masonry NC I
Construction	Region XI	Davao City/Sur	Helper Mason	Masonry NC I
Construction	Region XI	Davao City/Sur	Masons	Masonry NC I
Construction	Region XI	Davao City/Sur	Masons	Masonry NC II
Construction	Region XI	Davao City/Sur	Masons	Masonry NC III
Construction	Region XI	Davao City/Sur	Plate Welder (SMAW)	Shielded Metal Arc Welding NC I
Construction	Region XI	Davao City/Sur	Plate Welder (SMAW)	Shielded Metal Arc Welding NC II
Construction	Region XI	Davao City/Sur	Plate Welder (SMAW)	Shielded Metal Arc Welding NC III
Construction	Region XI	Davao City/Sur	Plate Welder (SMAW)	Shielded Metal Arc Welding NC IV
Construction	Region XI	Davao City/Sur	Rough Mason	Masonry NC II
Construction	Region XI	Davao City/Sur	SMAW Welder	Shielded Metal Arc Welding NC I
Construction	Region XI	Davao	SMAW Welder	Shielded Metal Arc Welding NC II

Sector	Region	Province	Skills/Jobs/	Equivalent Qualification
		City/Sur		
Construction	Region XI	Davao City/Sur	SMAW Welder	Shielded Metal Arc Welding NC III
Construction	Region XI	Davao City/Sur	SMAW Welder	Shielded Metal Arc Welding NC IV
Construction	Region XI	Davao City/Sur	Structural Welders	Shielded Metal Arc Welding NC I
Construction	Region XI	Davao City/Sur	Structural Welders	Shielded Metal Arc Welding NC II
Logistics	Region XI	Davao City/Sur	Rigging Operator	Rigging NC I
Metals and Engineering	Region XI	Davao City/Sur	Plate Welder (SMAW)	Shielded Metal Arc Welding (SMAW) NC I
Metals and Engineering	Region XI	Davao City/Sur	Plate Welder (SMAW)	Shielded Metal Arc Welding (SMAW) NC II
Metals and Engineering	Region XI	Davao City/Sur	Plate Welder (SMAW)	Shielded Metal Arc Welding (SMAW) NC III
Metals and Engineering	Region XI	Davao City/Sur	Plate Welder (SMAW)	Shielded Metal Arc Welding (SMAW) NC IV
Metals and Engineering	Region XI	Davao City/Sur	SMAW Welder	Shielded Metal Arc Welding (SMAW) NC I
Metals and Engineering	Region XI	Davao City/Sur	SMAW Welder	Shielded Metal Arc Welding (SMAW) NC II
Metals and Engineering	Region XI	Davao City/Sur	SMAW Welder	Shielded Metal Arc Welding (SMAW) NC III

Sector	Region	Province	Skills/Jobs/	Equivalent Qualification
Metals and Engineering	Region XI	Davao City/Sur	SMAW Welder	Shielded Metal Arc Welding (SMAW) NC IV
Metals and Engineering	Region XI	Davao City/Sur	Welder	Flux-Cored Arc Welding (FCAW) NC I
Metals and Engineering	Region XI	Davao City/Sur	Welder	Flux-Cored Arc Welding (FCAW) NC II
Metals and Engineering	Region XI	Davao City/Sur	Welder	Flux-Cored Arc Welding (FCAW) NC III
Metals and Engineering	Region XI	Davao City/Sur	Welder	Gas Metal Arc Welding (GMAW) NC I
Metals and Engineering	Region XI	Davao City/Sur	Welder	Gas Metal Arc Welding (GMAW) NC III
Metals and Engineering	Region XI	Davao City/Sur	Welder	Gas Metal Arc Welding (GMAW) NC III
Metals and Engineering	Region XI	Davao City/Sur	Welder	Gas Tungsten Arc Welding (GTAW) NC II
Metals and Engineering	Region XI	Davao City/Sur	Welder	Gas Tungsten Arc Welding (GTAW) NC IV
Metals and Engineering	Region XI	Davao City/Sur	Welder	Gas Welding NC I
Metals and Engineering	Region XI	Davao City/Sur	Welder	Gas Welding NC II
Metals and Engineering	Region XI	Davao City/Sur	Welder	Shielded Metal Arc Welding (SMAW) NC I
Metals and Engineering	Region XI	Davao	Welder	Shielded Metal Arc Welding (SMAW) NC II

Sector	Region	Province	Skills/Jobs/	Equivalent Qualification
		City/Sur		
Metals and Engineering	Region XI	Davao City/Sur	Welder	Shielded Metal Arc Welding (SMAW) NC III
Metals and Engineering	Region XI	Davao City/Sur	Welder	Shielded Metal Arc Welding (SMAW) NC IV
Metals and Engineering	Region XI	Davao City/Sur	Welder	Submerged Arc Welding (SAW) NC I
Metals and Engineering	Region XI	Davao City/Sur	Welder	Submerged Arc Welding (SAW) NC II
Agriculture and Fishery	Region XII	Sarangani	Fish feeder	No Equivalent Qualification
Agriculture and Fishery	Region XII	Sarangani	Fisherman	Fish Capture NC II
Agriculture and Fishery	Region XII	Sarangani	Fish Nursery Worker	Aquaculture NC II
Agriculture and Fishery	Region XII	Sarangani	Shrimp and Fish Grow Out Worker	Aquaculture NC II
Agriculture and Fishery	Region XII	General Santos	Fish Feeder	No Equivalent Qualification
Agriculture and Fishery	Region XII	General Santos	Fish Capture Workers	Fish Capture NC I
Agriculture and Fishery	Region XII	General Santos	Fish Capture Workers	Fish Capture NC II
Agriculture and Fishery	Region XII	General Santos	Sonar Fishing Operator	No Equivalent Qualification

Sector	Region	Province	Skills/Jobs/	Equivalent Qualification
Agriculture	Region XII	South Cotabato	Inland Fisherfolks (Aquaculture)	Aquaculture (Hatchery Operation) NC II
Agriculture	Region XII	South Cotabato	Inland Fisherfolks (Aquaculture)	Aquaculture (Grow-out Operation) NC II
Agriculture	Region XII	South Cotabato	Inland Fisherfolks (Aquaculture)	Aquaculture (Tilapia Culture) NC II
Tourism	Region XII	Sarangani	Tour Guides	Tour Guiding Services NC III
Tourism	Region XII	Sarangani	Tourism Promoters/ Desk Officer	Tourism Promotion Services NC II
Tourism	Region XII	General Santos	Tour Guides	Tour Guiding Services NC III
Tourism	Region XII	Sultan Kudarat	Tour Guide	Tour Guiding Services NC III
Tourism	Region XII	Sultan Kudarat	Tour Guide	Tour Packaging (FIT AD HOC DOMESTIC) Services NC II
Metals and Engineering	Region XII	General Santos	Machine Operations Services (Plant mechanic and Machine Operator)	Plant Maintenance NC I
Metals and Engineering	Region XII	General Santos	Shielded Metal Arc Welders	Shielded Metal Arc Welding (SMAW) NC I
Metals and Engineering	Region XII	General Santos	Shielded Metal Arc Welders	Shielded Metal Arc Welding (SMAW) NC II
Metals and Engineering	Region XII	General Santos	Shielded Metal Arc Welders	Shielded Metal Arc Welding (SMAW) NC III
Metals and Engineering	Region	General	Shielded Metal Arc Welders	Shielded Metal Arc Welding (SMAW) NC

Sector	Region	Province	Skills/Jobs/	Equivalent Qualification
	XII	Santos		IV
Construction	Region XII	General Santos	Welder	Flux Cored Arc Welding (FCAW) NC I
Construction	Region XII	General Santos	Welder	Flux Cored Arc Welding (FCAW) NC II
Construction	Region XII	General Santos	Welder	Flux Cored Arc Welding (FCAW) NC III
Construction	Region XII	General Santos	Welder	Gas Metal Arc Welding (GMAW) NC I
Construction	Region XII	General Santos	Welder	Gas Metal Arc Welding (GMAW) NC II
Construction	Region XII	General Santos	Welder	Gas Metal Arc Welding (GMAW) NC III
Construction	Region XII	General Santos	Welder	Gas Tungsten Arc Welding (GTAW) NC II
Construction	Region XII	General Santos	Welder	Gas Tungsten Arc Welding (GTAW) NC IV
Construction	Region XII	General Santos	Welder	Gas Welding NC I
Construction	Region XII	General Santos	Welder	Gas Welding NC II
Construction	Region XII	General Santos	Welder	Shielded Metal Arc Welding (SMAW) NC I
Construction	Region XII	General Santos	Welder	Shielded Metal Arc Welding (SMAW) NC II

Sector	Region	Province	Skills/Jobs/	Equivalent Qualification
Construction	Region XII	General Santos	Welder	Shielded Metal Arc Welding (SMAW) NC III
Construction	Region XII	General Santos	Welder	Shielded Metal Arc Welding (SMAW) NC IV
Construction	Region XII	General Santos	Welder	Manual Metal Arc Welding (MMAW) NC I
Construction	Region XII	General Santos	Welder	Manual Metal Arc Welding (MMAW) NC II
Construction	Region XII	General Santos	Welder	Manual Metal Arc Welding (MMAW) NC III
Construction	Region XII	General Santos	Welder	Manual Metal Arc Welding (MMAW) NC IV
Construction	Region XII	General Santos	Welder	Submerged Arc Welding (SAW) NC I
Construction	Region XII	General Santos	Welder	Submerged Arc Welding (SAW) NC II
Construction	Region XII	General Santos	Carpenter	Carpentry NC II
Construction	Region XII	General Santos	Carpenter	Carpentry NC III
Construction	Region XII	General Santos	Mason	Masonry NC I
Construction	Region XII	General Santos	Mason	Masonry NC II
Construction	Region	General	Mason	Masonry NC III

Sector	Region	Province	Skills/Jobs/	Equivalent Qualification
	XII	Santos		
Agriculture, Fishery and Forestry	CARAGA	Dinagat Islands	Fish Grow-out	Aquaculture (Grow-out Operation) NC II
Agriculture, Fishery and Forestry	CARAGA	Dinagat Islands	Fishnet Makers and Repairers	Net Construction and Maintenance Level II
Tourism	CARAGA	Agusan del Sur	Tour Guides	No Equivalent Qualification
Tourism	CARAGA	Dinagat Islands	Local Tour Guides	Tour Guiding Services NC III
Tourism	CARAGA	Surigao del Norte	Tourism Promoter	Tourism Promotion NC II
Tourism	CARAGA	Surigao del Sur	Local Tour	Local Tour Guiding Services NC II
Tourism	CARAGA	Agusan del Norte	Tour Guides	Local Guiding Services NC II
Agriculture, FORESTRY AND FISHERY	BARMM	Basilan	Fishpond technicians	Aquaculture NC II
Agriculture, FORESTRY AND FISHERY	BARMM	Basilan	Fish culture	Aquaculture (Hatchery Operation) NC II
Agriculture, FORESTRY AND FISHERY	BARMM	Basilan	Fish breeder	Aquaculture (Grow-out Operation) NC II
Agriculture, FORESTRY AND FISHERY	BARMM	Basilan	Aquaculture farm caretaker/ fish warden	Fish Capture NC II
Agriculture, FORESTRY AND FISHERY	BARMM	Basilan	Fish sanctuary establishment and preservation manager	Fish Capture NC II

Sector	Region	Province	Skills/Jobs/	Equivalent Qualification
Agriculture, FORESTRY AND FISHERY	BARMM	Basilan	Fish handling	Fishport/Wharf Operation NC I
TOURISM	BARMM	Basilan	Sports fishing	No Equivalent Qualification
Agriculture & Fishery	BARMM	Tawi-Tawi	Fisherman	Fish capture NCI, NCII
Agriculture and Fisheries	BARMM	Maguindanao	Inland fishing/fish pond management and production	Fish Capture NC I
Agriculture and Fisheries	BARMM	Maguindanao	Inland fishing/fish pond management and production	Fish Capture NC II
Agriculture and Fisheries	BARMM	Maguindanao	Fish Grower	Fish Capture NC I
Agriculture and Fisheries	BARMM	Maguindanao	Fish Grower	Fish Capture NC II
Agriculture and Fisheries	BARMM	Maguindanao	Fish Grower	Aquaculture (Grow-out Operation) NC II
Agriculture and Fisheries	BARMM	Maguindanao	Fish Production (fingerlings, tilapia, bangus, dalag, etc.)	Fish Capture NC I
Agriculture and Fisheries	BARMM	Maguindanao	Fish Production (fingerlings, tilapia, bangus, dalag, etc.)	Fish Capture NC II
Agriculture and Fisheries	BARMM	Maguindanao	Fish Production (fingerlings, tilapia, bangus, dalag, etc.)	Aquaculture (Tilapia Culture) NC I
Agriculture and Fisheries	BARMM	Maguindanao	Fish Hatcher Operator	Fish Capture NC II
Agriculture and Fisheries	BARMM	Maguindanao	Fish Hatcher Operator	Aquaculture NC II

Sector	Region	Province	Skills/Jobs/	Equivalent Qualification
Agriculture and Fisheries	BARMM	Maguindanao	Feeds making (for fish)	Fish Capture NC II
Agriculture and Fisheries	BARMM	Maguindanao	Feeds making (for fish)	Aquaculture NC II
Agriculture and Fisheries	BARMM	Maguindanao	Feeds making (for fish)	Food Processing NC II
Agriculture and Fisheries	BARMM	Maguindanao	Fish Culture	Fish Capture NC II
Agriculture and Fisheries	BARMM	Maguindanao	Fish Culture	Aquaculture NC II
Agriculture and Fisheries	BARMM	Maguindanao	Fish Capture	Fish Capture NC II
Agriculture and Fisheries	BARMM	Maguindanao	Fish Capture	Aquaculture NC II
Agriculture and Fisheries	BARMM	Maguindanao	Fishing	Fish Capture NC I
Agriculture and Fisheries	BARMM	Maguindanao	Fishing	Fish Capture NC II
Agriculture and Fisheries	BARMM	Maguindanao	Fishing Technician	Fishing Gear Repair and Maintenance NC III
Agriculture and Fisheries	BARMM	Maguindanao	Fishing Technician	Animal Health Care and Management NC III
Agriculture and Fisheries	BARMM	Maguindanao	Fish and Marine Products Processing	Food Processing NC I
Agriculture and Fisheries	BARMM	Maguindanao	Fish and Marine Products Processing	Food Processing NC II

Sector	Region	Province	Skills/Jobs/	Equivalent Qualification
		o		
Agriculture and Fisheries	BARMM	Maguindanao	Fish and Marine Products Processing	Food Processing NC III
Agriculture and Fisheries	BARMM	Maguindanao	Fish and Marine Products Processing	Food Processing NC IV
Agriculture and Fisheries	BARMM	Maguindanao	Fish and Marine Products Processing	Fish Product Packaging NC II
Agriculture	BARMM	Lanao Del Sur	Fish Capture	FISH CAPTURE NC II
Agriculture	BARMM	Lanao Del Sur	Fish Culture	No Equivalent Qualification
Agriculture	BARMM	Lanao Del Sur	Fish Breeding	AQUACULTURE NC I
Agriculture	BARMM	Lanao Del Sur	Fish Breeding	AQUACULTURE NC II
Agriculture	BARMM	Lanao Del Sur	Fish Breeding	AQUACULTURE NC III
Agriculture	BARMM	Lanao Del Sur	Fish Sanctuary Establishment & Preservation	FISH CAPTURE NC II
Agriculture	BARMM	Lanao Del Sur	Aquaculture Farm Caretaker/ Fish Warden	No Equivalent Qualification
Construction and Transportation	BARMM	Lanao Del Sur	Fish Landing Ports Sea Port (Wharf)	FISH PORT/WHARF OPERATIONS NC II
TOURISM	BARMM	Basilan	Tour operator	Tour Guiding Services NC III

Sector	Region	Province	Skills/Jobs/	Equivalent Qualification
TOURISM	BARMM	Basilan	Tour packaging	Tour Packaging Services NC II
TOURISM	BARMM	Basilan	Tour guide	Tour Guiding Services NC III
Tourism	BARMM	Tawi-Tawi	Tourism Promotion Services	Tourism Promotion Services NCII
Tourism (Hotel and Restaurant)	BARMM	Maguindanao	Tour Guiding	Tour Packaging N C II
Tourism (Hotel and Restaurant)	BARMM	Maguindanao	Tour Guiding	Local Guiding Services NC II
Tourism (Hotel and Restaurant)	BARMM	Maguindanao	Tour Servicing	Tour Packaging N C II
Tourism (Hotel and Restaurant)	BARMM	Maguindanao	Tour Servicing	Local Guiding Services NC II
Tourism (Hotel and Restaurant)	BARMM	Maguindanao	Tour Manager	Tourism Promotion Services NC II
Tourism (Hotel and Restaurant)	BARMM	Maguindanao	Tourism Promotion	Tourism Promotion Services NC II
Tourism (Hotel and Restaurant)	BARMM	Maguindanao	Tourism Management Training	Tourism Promotion NC II
Tourism Sector	BARMM	Lanao Del Sur	Tour Operator	No Equivalent Qualification
Tourism Sector	BARMM	Lanao Del Sur	Tour Packaging	TRAVEL SERVICES NC II
Tourism Sector	BARMM	Lanao Del Sur	Tour Guiding	LOCAL GUIDING SERVICES NC II

Source: Regional/ Provincial Skills Priorities from R/PSP Reports as of September 2023



Office of the Deputy Director General for Policies and Planning

Planning Office - Labor Market Information Division

Planning Office - Policy Research and Evaluation Division

TESDA Complex, East Service Road, South Superhighway,
Taguig City, 1630

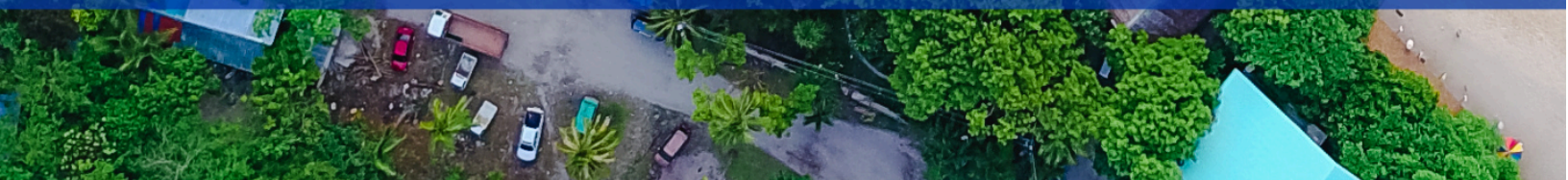
www.tesda.gov.ph | (02) 8817-2675

Contributors:

Francis Oliver A. Mejorada

Christina Maureen S. Dulce

AED Katherine Amor A. Zarsadias





**Labor Market Information Division
Planning Office**
Office of the Deputy Director General for Policies and Planning
Technical Education and Skills Development Authority
TESDA Complex, East Service Road, South Luzon Expressway (SLEX)
Fort Bonifacio, Taguig City 1630, Metro Manila



/TESDAOfficial



contactcenter@tesda.gov.ph



02) 8817- 2675 / 8893 - 1966

www.tesda.gov.ph