Agulhas and Somali Currents Large Marine Ecosystems Project

Capacity Building and Training Component

National Training Plan for

REPUBLIC OF THE SEYCHELLES

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INTRODUCTION

Situated in western Indian Ocean, the Seychelles archipelago comprises of 115 islands surrounded by an EEZ of 1.3million km² of sea water. Its vast maritime territory is biologically and ecologically rich in terms of biodiversity and resources. Thus it guarantees food security in view that fish is the island' staple food. Furthermore, fishing plays a vital role in the Seychelles' economic development as it is the third economic pillar. It also provides important revenue from export as well as employment opportunities for a significant percentage of the local population. Because of the afore-mentioned, it can be argued that conservation as well as stock management of certain fish and other marine species is and will remain a challenge in order to ensure sustainability in terms of food security. Various tourism development projects along the coasts also pose threats to various marine habitats. It is therefore pertinent that proper environmental feasibility studies are undertaken prior to approving the implementation of such development projects as they might have an adverse effect on the Seychelles' marine ecosystem. Illegal fishing is another area of concern which might lead to uncontrolled management of the islands' marine resources. We also have recently seen cases of oil pollution which is another menace to the marine ecosystem. The change in climate as well as the global warming also presents another hazard to the marine ecosystem denoted by coral bleaching.

The habitat of the Seychelles diverse marine ecosystem remains general unknown as limited studies have been undertaken. M. Etienne (MEDA 2010) stated that there have been very little studies done for all species of seagrass and only some studies have carried out for distribution, abundance and community. The composition around Mahé was done by Holland in 2000 during the Shoals of Capricorn programme. Sediment and soft bottom habitat is another type of environment that is found throughout the Seychelles but unfortunately there has been very little work done in this area. There has been some mapping conducted around the inner islands and also the island of the Amirantes but these habitats remain generally unstudied.

Taking into consideration the afore-mentioned maritime environmental concerns, it is pertinent that the Seychelles has the required quality as well as quantity of human resources. Once equipped with the appropriate skills and knowledge, the Seychelles will be able to ensure the proper management, protection as well as the conservation of its marine ecosystem. Consequently the Seychelles will be able to have the capacity to respond to the growing demands for fish as well as other marine species stemming from the boom in the local tourism industry as well as the international demands.

The training needs analysis was conducted using questionnaires and interviews. Secondary data pertaining to the current number of graduates

who have been trained at Degree level in maritime related fields was obtained from the National Human Resource Development Council. Statistics on graduates trained in maritime related fields at certificate level was obtained from the Maritime Training Centre. It should be noted that most information especially pertaining to the training needs of the maritime related organisations was not easily accessible and thus the delay in completing the plan.

At present there are six main organisations undertaking maritime related functions. The Seychelles Fishing Authority ensures responsible and sustainable exploitation of living marine resources. The wildlife, trade and conservation section of the Department of Environment is responsible for the protection and management of endangered marine species populations and sites. The Island Conservation Society with 17 staff promotes the conservation and restoration of small islands especially the outer islands of the Seychelles.

The Seychelles Island Foundation is responsible for the management of the Aldabra Atoll the UNESCO World Heritage Site. Aldabra which can be globally considered as a floating research platform is valuable to investigate issues related to ecological and oceanographic connectivity (ocean currents, plankton, fish larva, coral larva etc…).

The Seychelles Centre for Marine Research and Technology - Marine Parks Authority (SCMRT-MPA) is a scientific and conservation parastatal organisation established by government in 2001. SCMRT-MPA is mandated to manage the Marine National Parks, to promote marine education and advance marine research in the Seychelles. The institution's headquarters are located in Victoria with three operational field bases which are located on the Curieuse, Port Launay and Ste Anne Marine National Parks.

At present most of these maritime related organisation are conducting mainly on the job training for their staff. The Island Conversation Society for instance participates in various research projects with foreign universities which include co-supervision of Masters and PHD students and authorship on a number of scientific papers. The Society also provides training opportunities for young Seychellois in the field of wildlife monitoring and conservation science as well as island management.

The staff employed in the Research Section of the National Parks Authority undertake off the job training courses as they are required to have Maritime Training Certificate in Elementary first aid, Basic Fire fighting, Personal survival techniques, personal safety and social responsibilities. The afore-mentioned skills are necessary for boat handling in marine research.

Table denoting educational capacity at diploma and university degree level of existing staff in maritime related organisations

Field of Training	Course Level	Quantity
Marine – Biology	Bsc/Ba	9
Advanced Open water	Certificate	1
Botanical conservation	Msc	1
Navigation and Seamanship	Certificate	1
Marine Biology/Aquaculture	BSC	1
Biology	BSC	1
Marine - Applied Science	Msc/Ma	1
Environmental Science & Geography	BSC	1
Environmental Science	BA/BSC	2
Nautical Studies	Msc/Ma	2
Navigation	Msc/Ma	1
Marine – Science	Bsc/Ba	3
Marine Science & Fisheries	Bsc/Ba	1
Wildlife conservation & Management	Msc	1
Biologic Oceanography	MSC	1
Countryside management	BSC	1
Fisheries Science & Ocean science	BSC	1
Physical oceanography & meteorology	Bsc	1
Zoology & Geography	Bsc	1
Technician Superieur de la mer	Diploma	1
Field of Training	**Course Level**	**Quantity**
Fisheries Science	Diploma	1
Doctor of Philosophy (Marine Biology and Zoology)	PhD Bachelor of Science	1
Basic Agriculture Livestock Forestry	Certificate Certificate Diploma	1
Post Secondary School	Certificate of attendance	3
Motor vehicle	Diploma	1
Construction	Diploma	1
Navigation and Fisheries 60 Nautical Miles	Diploma Skipper License	1
Machining and Fittings	Certificate	1

The table above denotes the educational capacity of human resource in maritime related fields at overseas Diploma and University levels. As shown Marine Biology is the dominated field of study.

It is noted that apart from the above, there are also other individuals who have been trained in maritime related fields who have exit the maritime sector and are now pursuing their careers in different fields. The number is yet to be determined.

The above courses have been undertaken on full time basis and in the majority of the cases the courses have been sponsored either fully by the Government of Seychelles or through sponsorship under bilateral and multi lateral donor scholarships.

To be eligible for university scholarships, students which are mainly graduates from the post secondary institution should have minimum of c grade in three A' level subjects.

The students who benefit from scholarships have to serve a bonding agreement to work for the country for a period of two to five years depending on the cost as well as the duration of the training courses. Currently the students have to apply for a loan to cover their cost of living. The loan is then disbursed to the students' foreign account in the form of monthly stipends.
The persons denoted in the above table who hold a university degree have also mostly been trained in English based institutions in different countries such as Australia, United Kingdom, New Zealand and Malaysia. As denoted in the table below most of the graduates were trained in United Kingdom and Australian universities. The courses were undertaken over a period of three years for undergraduate courses and four to five years for post graduate courses.

Table 2:- GRADUATES IN THE FIELD OF ENVIRONMENT/MARINE FISHING

ORGANISATIONS	FIELD OF TRAINING	INSTITUTION
Department of Environment	Environment – Management	University of Wolverhamton
Leaving Overseas	Environment – Management	James Cook/Curtin University
Private Sector	Environment – Management	Edith Cowan University
Red Cross Society of Seychelles	Environment – Management	Edith Cowan University
SPPF	Environment –	University of Sheffield

	Management	
Landscape & Waste Management Agency	Environmental Biology	University of Nottingham
Retired	Marine Science & Fisheries	University of Humberside
Leaving Overseas	Marine Science	James Cook University
IOTC	Marine - Applied Science	University of Plymouth
Green Island Foundation	Marine Biology	James Cook University
Green Island Foundation	Marine Biology	James Cook University
Department of Education	Marine Biology	University of Plymouth
R.E.C.O.M.A.P	Marine Biology	University of Newcastle
Seychelles Fishing Authority	Marine Biology	James Cook University
Seychelles Fishing Authority	Fisheries Science	University of Tasmania
Seychelles Fishing Authority	Fisheries Science	University of Tasmania
Seychelles Fishing Authority	Fishery Economics	University of Portmouth

It is also pertinent to note that none of the persons denoted in table 2 above, undertook their studies through distance learning education, which thus indicates that this form of training is being under use in the maritime field which is not the case for computing and management courses.

Local maritime related organisations also need to have more capacity at the Master's and PhD level to allow for the development of more local research, project development, management Education and Awareness.

Locally delivered courses are all undertaken in English in view that all local secondary and post secondary institutions use English as their teaching language. Diploma and certificate level courses have been conducted at the Maritime Training Centre. The duration of the courses vary from one to three years depending on the level of the courses. The local courses are fully sponsored by the Government.

GRADUATES IN THE FIELD OF ENVIRONMENT/MARINE/FISHING

ORGANISATIONS	FIELD OF TRAINING	GENDER
Department of Environment	Environment – Management	M
Leaving Overseas	Environment – Management	F
Private Sector	Environment – Management	M
Red Cross Society of Seychelles	Environment – Management	M
SPPF	Environment – Management	M
Landscape & Waste Management Agency	Environmental Biology	M
Retired	Marine Science & Fisheries	M
Leaving Overseas	Marine Science	M
IOTC	Marine - Applied Science	M
Green Island Foundation	Marine Biology	F
Green Island Foundation	Marine Biology	F
Department of Education	Marine Biology	F
R.E.C.O.M.A	Marine Biology	M
Seychelles Fishing Authority	Marine Biology	F
ORGANISATIONS	**FIELD OF TRAINING**	**GENDER**

Seychelles Fishing Authority	Fisheries Science	M
Seychelles Fishing Authority	Fisheries Science	M
Seychelles Fishing Authority	Fishery Economics	M

The above table shows that the majority of persons trained in Maritime related field are male. There are more females trained in Marine Biology. Most of the graduates are employed at the Seychelles Fishing Authority.

At present there are 8 students undertaking their studies in maritime/fisheries field, as shown below. This implies that the sector will be receiving 8 additional technical and professional workers over the next five years.

	2012	2013	2014	2015	**Total**
Fisheries/Maritime	3	1	2	2	**8**

Seychelles has for a long time been an importer of foreign labour. Due to its limited human resource base and the limited capacity of the education and training system to train for all the labour demand requirements, foreign labour is imported to fill the skills shortage that exist across the various local industries. Alongside recruiting expatriates as a temporary solution to fill in the gaps, the government has also developed strategies, such as increasing students' intake in some post-secondary training institutions and the award of fully funded scholarships in some fields of studies to build up the competencies of its local human resources. However, several factors such as migration and a low birth rate have hindered the process of filling up vacant positions by local employees. Provision must be made in the future to provide Seychellois with the required training to replace these expatriate staff.

Table denoting expatriate in Maritime related organisations

Demand by Industry and Major Occupational Groups 2012-2016

Industries	**Major Occupational Groups**						
	Professional/Technical	**Managerial**	**Clerical**	**Production**	**Service**	**Total**	
Fisheries/Maritime	75	15	4	227	-	**321**	

Source: National Human Resource Needs Survey 2010/2011, Policy Research & Planning Section, NHRDC, Approved projects - SIB

As denoted in the above table denotes over the next five years a total of 75 professional/technical staff will be required to work in the Fisheries and Maritime field.

As aforementioned the fisheries sector is one of the key economic sector in Seychelles. Traditionally, the fisheries industry has occupied an important place in the life of the Seychellois people and played a major role in the socio-economic development of the country. It provides important revenue from export and also employment opportunities for a significant percentage of the

local population. The local fisheries sector includes a number of sub-sectors, namely:

On average about 90% of the artisanal catch is consumed locally. The fleet is made up of some 400 to 450 fishing vessels ranging in sizes from 5m to 16m. The total landed catch has remained constant for a number of years at approximately 4,000 metric tons per year.

Semi-industrial fishery – The entire fleet is locally owned and targets mainly swordfish and deep tuna (outside the continental plateau) using mono-filament long-line fishing method. The annual landings amount to 400 metric tons and almost the entire catch is sold on the export market.

Industrial fishery – The fleet is almost entirely foreign owned and consist of tuna purse seiners and long-liners, landing an average 300,000 to 350,000 metric tons annually. Approximately 85% of the tuna catch from purse seiners is transhipped in Port Victoria and around 90,000 metric tons are processed by the Indian Ocean Tuna Factory.

During the past 15 to 20 years, the local fisheries industry has witnessed significant developments especially in the introduction of new fishing techniques and new generation of fishing vessels. Government has been more involved in the sector through the provision of investment capital and offering a wide range of incentives and concessions to the fishing sector. The Agricultural and Fisheries Incentives Act 2005 provides a wide range of incentives to investors in the sector. Government has also made considerable efforts in providing the necessary shore-based facilities to both the artisanal and industrial sector.

The Seychelles Fishing Authority (SFA) which is the executing agency of government in all fisheries related matters has over the last decade, conducted fishing trials with the introduction of new technology and gears, which has been successfully transferred to the artisanal fishing sector. A fleet replacement programme was also implemented and that resulted in the construction of new artisanal fishing boats of various sizes and designs. Financial assistance for these programmes came from the Japanese government, the African Development Bank (ADB) and the European Union (EU). However, the fleet replacement programme encountered some constraints due mainly to high investment costs, unreliable crew and lack of managerial skills and poor rate of return on investments. Apart from credit facilities offered by commercial banks, local fishermen benefit from soft term loans from the Development Bank of Seychelles (DBS) to purchase new fishing boats and engines.

The sector is one that has somehow been badly affected by external events, mainly the increased threat of piracy attacks related to more of such activities in the Indian Ocean. As a result of this, there has been a reduction in the

tonnage of fish caught by artisanal fishermen, decreasing from 4,500 tonnes in 2009 to 2,500 tonnes in 2010. Similar performance was recorded in the semi-industrial fishing where the total catch has reduced from 330 tonnes in 2009 to 295 tonnes in 2010. It has also been reported that during the first six months of 2011, industrial fishing vessels in the Western Indian Ocean caught 15% less fish than in the same period in 2010 whereas the tonnage of fish trans-shipped or offloaded at Port Victoria also recorded a 16% reduction.

Information obtained from the SFA indicated that the number of full and part-time commercial fishermen varies between 1,700 and 1,800 primarily due to the seasonal mobility associated with the sector. During the period January – December 2010, a maximum of 110 Seychellois seamen made at least one trip on board a foreign purse seiner. Other areas of employment opportunities in the fishing industry are vessel repair and maintenance, fishing net repairs and manufacturing, ship handling, stevedoring, bunkering, manufacturing of local fish traps, construction of local fishing vessels, sale of bamboo trees for the construction of fish aggregating devices used by purse seiners, sale of shark fines and sea cucumbers.

It is also noted that there should be more sensitization for young persons to take up in the artisanal fishing sector as it has been noted that the younger persons are not taking up employment in this field thus we will have a replacement issue.

The targets of the SFA for the five year period are guided by Government's policy for the fisheries sector. During this period, efforts in the sector will focus mainly on the decentralization of shore-based facilities for the artisanal sector so as to render fishing operations more viable. The promotion of value addition to marine resources through the incentives and the creation of joint ventures between locals and foreigners will be targeted. At the same time there is a need to ensure that the fisheries resources are protected from illegal fishing. Government also plans to explore the possibilities for the commercial exploitation of new and under-utilized resources and their value addition. The current and future development in the fisheries sector will require personnel with skills to perform jobs such as skippers, marine mechanics, fishermen (artisanal/industrial), marine engineer, marine technician, fisheries scientist, marine biologist as shown in the table below.

Human Resources Demands, supply and Gap Analysis by Occupations, Sectors and Industries 2012-2016

OCCUPATIONS	**TRAINING**	**LEVEL**	**DEMAND**				**SUPPLY**	**GAPS**
			Par	**Pub**	**Pvt**	**Total**		
Biologist	Biology	Degree		2	3	**5**	**inadequate**	**Shortage**
Captain - Boat/Marine	Nautical Science	Degree	12		12	**24**	**inadequate**	**Shortage**
Engineer - Marine	Marine Engineering	Degree	40		5	**45**	**inadequate**	**Shortage**
Technician - Fisheries	Fisheries Science	Adv Cert		6		**6**	**inadequate**	**Shortage**
Deckhand	Navigation &	Adv Cert			27	**27**	**inadequate**	**Shortage**

OCCUPATIONS	TRAINING	LEVEL	DEMAND				SUPPLY	GAPS
			Par	Pub	Pvt	Total		
	Seamanship Science							
Boatman	Navigation & Seamanship Science	Adv Cert	1	1	20	**22**	**inadequate**	**Shortage**
Able Seamen	Navigation & Seamanship Science	Adv Cert	3	1	87	**91**	**inadequate**	**Shortage**
Fisherman	Navigation & Seamanship Science	Cert			120	**120**	**inadequate**	**Shortage**
Mechanic - Marine	Marine Mechanics	Adv Cert	1		17	**18**	**inadequate**	**Shortage**
Inspector - Fish	Enforcement & Law	Adv Dip		1		**1**	**inadequate**	**Shortage**
Director	Nautical Science	Degree		1		**1**	**inadequate**	**Shortage**
Skipper	Navigation & Seamanship Science	Adv Cert	2		53	**55**	**inadequate**	**Shortage**
Scientist - Fisheries	Fisheries Managemen	Degree		4		**4**	**inadequate**	**Shortage**
Officer - Marine	Nautical Science	Degree		2		**2**	**inadequate**	**Shortage**

Source: National Human Resource Needs Survey 2010/2011 – NHRDC, Approved projects – SIB, Expatriate Employment Report 2010 - NHRDC
Notes: It has not been possible to quantify the supply figure against an individual occupation due largely to the difficulty to forecast labour supply in this manner
Par = Parastatal Sector
Pvt = Private Sector
Pub = Public Sector
Sec = Secondary
Cert = Certificate
Adv Cert = Advanced Certificate
Dip = Diploma
Adv Dip = Advance Diploma
Degree = Degree
License = License

The plan of the Seychelles Port Authority (SPA) which is responsible for the management and administration of local ports is that of consolidating, strengthening and upgrading of the institutional, infrastructural and human capacity at the port with a view of enhancing its strategic position as the best port regionally in terms of quality services, efficiency, competitiveness and reliability. The services on offer at the port are cargo handling, bunkering, ship repair as well as other marine services such as: pilotage, towage, heavy lifting services, offshore support, salvage work, fresh water supply, crew change, ship supplies and ship disposal and others.

Development in the port over the next five years is forecasted to bring a lot of investment and job opportunities for the local workforce. Several of the projects envisaged to be implemented are mostly construction-based and will thus generate demand for labour in the area of construction and marine engineering to a lesser extent. These include the extension of quays, building of new infrastructure such as roads, warehouses, workshops, passenger terminals and installation of a floating deck. Other projects will generate human resources demand in the areas of cargo handling, marine and ship surveying, pilotage (vessels), marine engineers/mechanics, ship repairs and naval architecture.

Founded in 2009 University of Seychelles has been established to permit more Seychellois to undertake university training as the cost of overseas university restricts the number of potential Seychellois that could attend university. The University of Seychelles currently employs 87 staff out of which 56 are permanent employees and 31 are part time lecturers.

The University of Seychelles delivers academic courses through the University of London International Programme. The University of London is one of the world's leading academic institutions, internationally recognised as a centre of excellence. Through its International Programme, the University has been offering degree programmes to international students for 150 years. The University of Seychelles uses the materials and resources from the University of London as the core of its course delivery and then adds its own value in order to fully support each student on campus.

The course structures designed in London are accredited by faculty staff working at some of the most eminent Colleges in the world, for example the London School of Economics (LSE) and the University College of London. The UK Times University Guide ranks the London School of Economics as 4th and the University College of London as 7th in 2008.

The University of London International Programme is recognised by the UK Quality Assurance Agency (QAA) as well as the Seychelles Qualifications Authority (SQA). The QAA is the national body established by the British government to assure the standards of Higher Education in the UK. In 2005 the QAA awarded the University of London International Programme a judgment of 'broad confidence' which is the highest assessment possible for any UK institution.

All undergraduate courses offered at the University of Seychelles are delivered through enrolments with the University of London International Programme. This means that course content and materials are designed and devised by faculty staff in London and used as the resource backbone for course delivery here in the Seychelles. The courses are, however, taught courses. Students attend lectures, seminars and tutorials. They have access to all university facilities and resources, from the conventional library to IT provisions, from recreational facilities to lecture archives. The amount of contact time with lecturers compares most favourably with that experienced by full-time students in other universities.

Assignments are set and monitored by UniSey faculty, to whom students are primarily responsible. Students' progress and performance are carefully monitored; students experiencing any problems with their selected course modules are quickly identified and assisted. Yearly examinations, including 'finals', are set and marked by University of London faculty. In common with

other universities successful completion of module coursework and examinations is essential for progression through the programme.

Students enrolling at the University of Seychelles receive course materials generated by the University of London International Programme Colleges. Essentially these programmes reflect the rigour and content of courses which run in London. There is no difference in status between a degree parchment awarded to a student who studies in London and a student who studies in the Seychelles. Graduating students receive a degree from the University of London and a degree from the University of Seychelles.

By building close relationships with industry the University aims to achieve high employment rates for its graduates. The courses initially offered by the University very much reflect the economic strengths of the Seychelles. Therefore, a significant part of each programme will be 'outreach' work, for example Tourism specialists will work closely with the hotel and tourism sector and Environmental Science students will have the advantage of studying in a uniquely unspoiled environment. In the future the University will consider the enrolment of students without formal academic qualifications but who possess prior learning and experience; the University aims to provide access to students from a wide range of backgrounds through flexible entry routes, although A levels and equivalent academic qualifications will remain the principal pathway for degree course admission

The University of Seychelles is yet to provide a course in maritime related field. Therefore, students who are interested in the marine field will have to pursue their studies overseas at degrees level.

At present the University of Seychelles is offering a course in Geography and Environment, in addition the University is developing a BSc course in Environment (Tropical SIDS) which will comprise of a unit on Marine Science as well as a full unit on Earth and Atmosphere System which will cover oceanography. In order to develop this course the university will require funding of approximately 30.000 USD

In its future plan the university also aim to develop course pertaining to the fields of Environment and Fisheries with the focus on tropical ecosystem management, restoration, coastal and marine ecosystem management, fisheries ecology and development as well as emphasis on adaptation and resilience building to climate change.

In 2011 a two-week workshop -- also known as boot camp was organised by the Virtual University for Small States of the Commonwealth (VUSSC - The VUSSC is a network of small countries committed to the collaborative development of free content resources for use in an educational context.) in collaboration with the UniSey.

During the two weeks session the participants shared their vast knowledge and experience in the various environment fields which is to be used to develop materials for the degree course which is later expected to be made available online through the distance learning programme to benefit small island states. The afore-mentioned degree course is very much in demand in small island states which are vulnerable to climate change

At present the School of Maritime studies is the only training institution providing maritime related courses locally. The School is fully funded by the Government of Seychelles.

A new Maritime Training Centre has been constructed in 2011 with excellent facilities such as specialist rooms with the relevant simulator software for PC based training in navigation and marine mechanics, fisheries laboratory and conference room. This implies that students graduating from the centre will now be better equipped with the required knowledge and skills to better respond to the demand of the maritime industry.

To ensure that the Maritime Training Centre students' intake and course contents correspond to the local labour market needs, a structure has been put in place whereby the National Human Resource Development Council and the Education Department meet with the head of the centre every first quarter of the year to finalize their intake.

It is expected that every year a total of 62 students will be accepted in the various courses at the centre over the next 5 years. Thus, excluding drop it is expected that the centre will produce 310 graduates over the next five years.

The aim is to make Maritime Training Centre the centre of excellence in the region. By the end of the year 2011 the Maritime Training Centre received its ISO certificate it has thus gained international recognition.

Over the past three years the school has been offering courses at certificate levels in advanced fisheries which is a three year course,
Deck hand and Marine Mechanic are two year courses. The apprenticeship course which is a two year course provides training opportunities for students who have not been successful in pursuing a full- time academic course at post-secondary level thus the course is generally practical oriented.

Secondary 5 students can enrol through the competitive process set up by the Ministry of Education. 10% of all placements in these courses are retained for mature students if there is a demand.

The Maritime training centre has on offer three Diploma level courses in the field of Marine Mechanics, Advanced Navigation and Seamanship and Advance Fisheries Science. Certificate in Basic Fisheries Science is being offered as part of an apprenticeship scheme. The centre also carries out short

courses such as: Basic First Aid in collaboration with the Ministry of Health, Personal Safety and Social

Responsibility, Personal Survival Techniques, Radio Operators Certificate of Proficiency and Navigation which all forms part of the Navigation Course which are offered as short courses to the general public as they are mandated requirement for licensed skippers.

The key modules in the different courses are as follows:
Marine Mechanics
Applied mechanics
Marine English
Advance Fisheries Science
Fisheries Biology
Fishery Industry
Advance Navigation and Seamanship
Marine Environment
Marine Pollution
Navigation
Deck modules
Legislations
Basic Fisheries Science

In 2008 a total of 46 students comprising of 20 female and 26 male enrolled for the advanced fisheries course. 19 students consisting of 4 female and 15 male followed the deckhand course. 17 male students undertook their studies in Marine mechanic field. The apprenticeship course enrolled 37 students comprising of 6 female.

A total of 63 students of the 2009/2010 academic year formally graduated from the MTC in May 2011 after completing courses in the following fields: Advanced Certificate in fisheries science (13), marine mechanics (14), navigation & seamanship (20) and certificate in basic fisheries science (16). The graduates' employment destination survey conducted by the centre during the first and second quarter of 2011 revealed that they have fared better on the labour market compared to the previous year. According to the result of the survey, 46 graduates (73%) had already secured employment by June 2011 compared to 2010 when it was 50%.

In 2011, the Maritime Training Centre revised some of its courses which were on offer in 2008 and since 2009, most of the courses are now being offered at advanced certificate level to better match demand in the corresponding sector.

In 2011, the Maritime Training Centre increased its student intake from 100 to 120, to encourage more young Seychellois to take up a career at sea. A total of 22 students inclusive of two girls pursued their studies at the Maritime

School in Advanced deckhand and Seamanship. 17 male students undertook the advanced marine mechanic course. 18 students comprising of 13 female e enrolled in the Advanced fisheries course. 25 students inclusive of 8 female pursued the apprenticeship course.

14 students consisting Of 11 female undertook the advanced year 2 fisheries course. 16 students out of which 2 female were enrolled in the Marine Mechanic year II course. 21 students inclusive of 5 female followed the Deckhand course. The apprenticeship program had 21 students comprising of 7 girls.

Training/Educational Institutions	Feeding Sectors	2012	2013	2014	2015	2016	**Total**
Maritime Training Centre (MTC)	Fisheries, Maritime, Tourism	62	62	62	62	62	**310**

As denoted in the above table, it is expected that a total of 62 students will graduate from the Maritime Training Centre per year over the next five years from the various courses on offer at the school. Subsequently, an estimated 310 graduates from the Centre will be produced over the period of five years.

The majority of students who undertook/ are undertaking their courses at the Maritime training centre obtain a monthly living allowance which is calculated based on the net income of the parents which can vary between SR200 to SR800. Students on apprenticeship skills receive an allowance of SR1300 which in some cases is jointly paid between the government and the company in which the student is undertaking the apprenticeship program.

To further enhance the courses on offer at the Maritime Training Centre it requires the following:-

Equipments: There is an urgent need, in the actual fisheries course, for two 25 feet fibre glass boats with their outboard engines (50Hp) plus controls for manoeuvring. At present the students are not getting the required practical skills in the Artisanal fishing techniques (fish trap, nets and handline) due to the lack of training boats.

Course development: The Maritime Training Centre is actually developing the required units to upgrade the Advanced Certificate in Fishing Technology & Fisheries Science; Advanced Certificate in Navigation & Seamanship; Advanced Certificate in Marine Mechanics courses to Diploma level in order to meet market demand for trained seafarers/fishermen.
Consequently an LCD projector and one laptop are required for the research, typing, documentation as well as the various presentations during the process.

Website: The Maritime Training Centre is also planning to develop its own website as a marketing tool to promote the various courses and services being

offered at present, up to 2020. Financial assistant will also be required for this project.

The Maritime Training Centre requires lecturers in Fisheries Science, Environment and Pollution, Climatology as well as for various deck modules. To continuously to provide high level courses, the Maritime Training Centre also requires a new Training vessel as well as 2 x 40 HP Outboard engines and also more Fishing gears and laboratory equipment as a priority especially for the delivery of the coastal fisheries techniques and personal survival at sea modules.

Visiting lecturers are needed to facilitate the modules in Fisheries Biology, Yachting and Sailing, Marine Pollution and Environment, Marine Engineering and Deck modules at the MTC.

The following 2 summary tables provide information on training required in the Seychelles. It was not possible to provide prioritize the training required.

BSc/MSc – needs a local but few available with sufficient qualifications Diving qualification	Long term course – minimum 3-year honours degree in ecological subject Rest of training would be on the job
Project Planning/Management effectiveness	Short course or on the job
Master	Long term course
Project Planning/ Management effectiveness	Short Courses
Project Planning/ Management effectiveness Radio Communication	Short Courses On the Job
Coastal Erosion, Modeling monitoring, Population Trends, Geographical Information systems Remote sensing Diving course, Plankton ID Fish & Coral ID Data logger	Short Courses On the Job
Coastal Erosion, Modeling monitoring, Population Trends, Geographical Information systems Remote sensing Coastal Erosion, Modeling monitoring, Population Trends, Geographical Information systems Remote sensing Diving course, Plankton ID Fish & Coral ID Data logger	Short Courses On the Job
Dive, Navigation	Short Courses On the Job

Marine Mechanic & Engineering	Short Courses On the Job
Diving course, Plankton ID Fish & Coral ID Data logger	Short Courses On the Job

			SUMMARY TABLE		
Subject	**Attendance**	**certificate**	**diploma**	**degree**	**Priority** **A - Immediate** **B – Short term** **C - medium term** **D- no requirements**
Technical training – marine related fields including fisheries and oceanography	(2) Short Course in Ichthyology			(1) MSC Fisheries & Ocean Science	
Economics and socioeconomics					
Numerical expertise (statistics, applied mathematics etc)	(1) Management of Acoustic Tagging data (2) Tagging of Sharks Tuna Swordfish (3) Population Trends, (3)Diving course, (3)Plankton ID Fish & Coral ID (3)Data logger			BSC	
Data management and information management skills	(4) Environmental Monitoring & Management (1)Modeling monitoring, Population Trends,			(1) Wild Life Conservation & Management (1) MSC Environmental Monitoring & Management	
Legal expertise				Maritime law	
Language education (general)					
Governance				Project planning and management	

Fisheries science (e.g. stock assessments, biological/ecological studies)	(1) Ecosystem approach to fisheries			(2) MSC Marine Biology (1)ecological studies	

Oceanography (Physical, chemical, biological)				(1) MSC in Physical Oceanography & Metrology	
Coastal zone management including expertise in GIS and MPA's					
Geology and Geomorphology including mineral extraction					
Aquaculture					
Coastal agriculture and forestry					
Climate research					
Microfauna and Meiofauna					
Macrofauna – Invertebrates, fish, mammals, reptiles, birds, exotics and invasive species				(1) MSC Zoology & Geography	
Environmental Education, human health					
Tourism					
Training of inspectors and observers, community involvement? (MCS, including pollution etc)					
Trans-disciplinary training for managers including ecosystem approach					
Fishing technology, implementing of quality control in industry					

Environmental monitoring, including pollution and remote sensing Biodiversity	(3)Coastal Erosion, Geographical Information systems Remote sensing				
Taxonomy and curation					
Pollution: land and marine based	(2)Coastal Erosion				