THE REPUBLIC OF THE UNION OF MYANMAR

MINISTRY OF LIVESTOCK, FISHERIES AND RURAL DEVELOPMENT

DEPARTMENT OF FISHERIES

FISHERY STATISTICS 2015

THE REPUBLIC OF THE UNION OF MYANMAR

MINISTRY OF LIVESTOCK , FISHERIES & RURAL DEVELOPMENT

FISHERY STATISTICS

2015

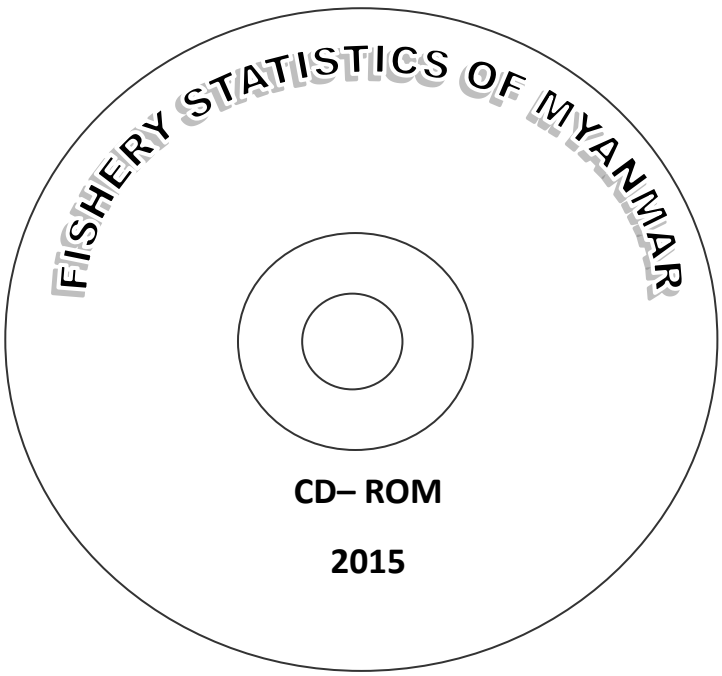
Department of Fisheries

Myanmar

AVAILABLE NOW

MYANMAR FISHERY STATISTICS

2015



The CDs are currently available in English only. Hence, for further information please contact the Department of Fisheries, The Republic of the Union of Myanmar, as address given below.

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CONTENTS

FOREWORD

Fishery Statistics of Myanmar for 2014-2015 fiscal year is published by the Department of Fisheries of the Ministry of Livestock and Fisheries. Since the fiscal year 2001-2002, the fishery statistics of Myanmar has been published with the objective of better understanding the situation and information on Myanmar fisheries. Moreover, we have added to some more facts and figures with the fishery information required from the previous 10 year up to this fiscal year, 2014-2015, for the convenience of all users. The annual reporting period used is fiscal year, from first April to the end of March next year.

Nowadays, the fishery statistics has been widely accepted as a tool in providing so as to know the current and past status of the fisheries and to draw up the short term and long term planning for fisheries including for food security and the rural development as well as for the conservation of fisheries resources.

It is clear that the reliable, accurate and timely data and information are needed for the effective fishery management and planning to meet the sustainable fisheries .Furthermore, the capture fisheries and aquaculture can provide many millions of livelihood opportunities of Myanmar people with resulting improved income generation and food-fish availability to the rural communities.

On behalf of the Department of Fisheries, I would like to express my heartfelt thanks to H.E U Ohn Myint, Union Minister for the Ministry of Livestock , Fisheries and Rural Development for his valuable and kind guidance. We also thank to H.E U Khin Maung Aye, Dr. Aung Myat Oo and U Tin Ngwe Deputy Ministers for the Ministry of Livestock ,Fisheries and Rural Development.

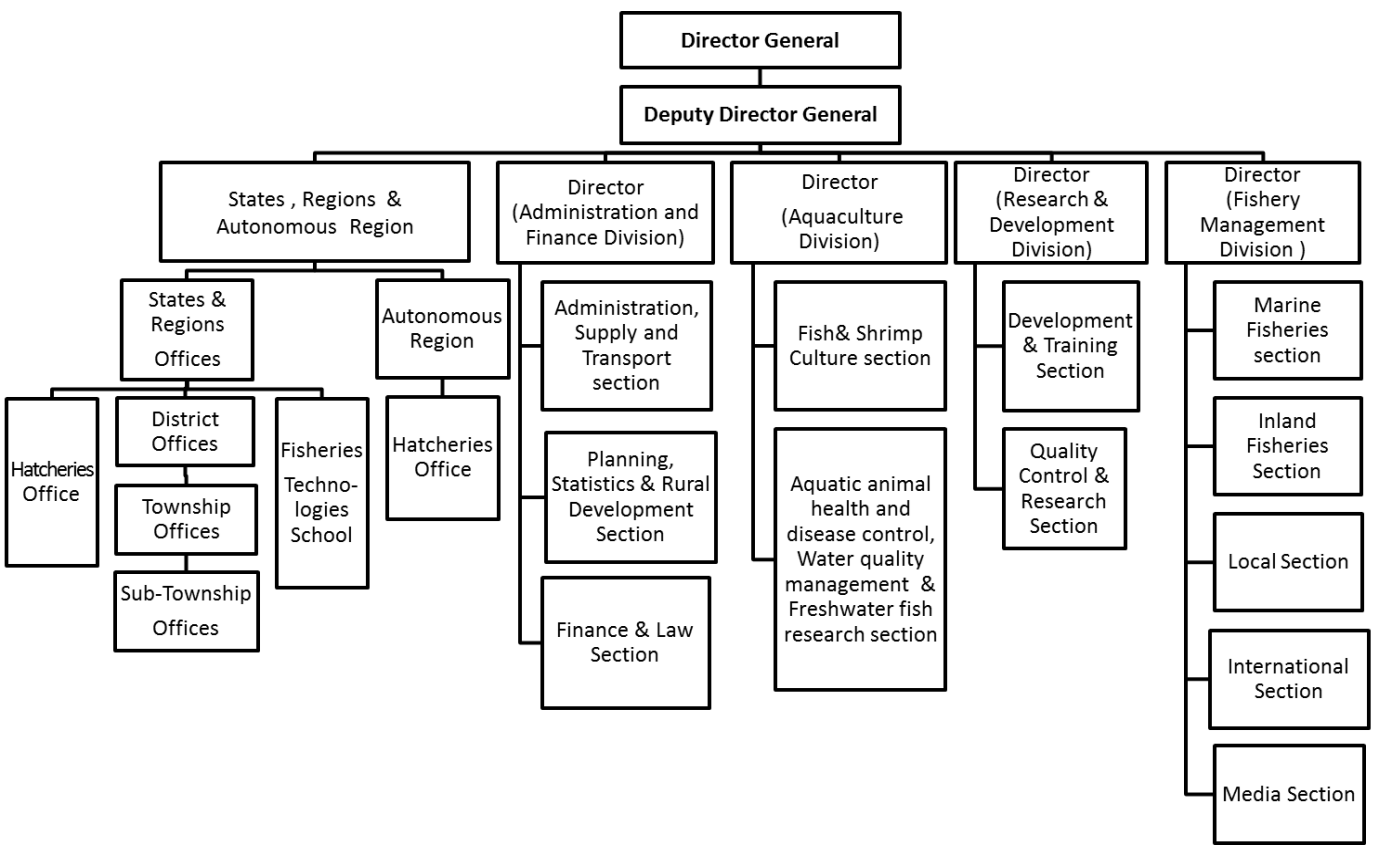
Moreover, Special thanks to U Tun Win, Deputy Director-General and all of the Directors of the Department of Fisheries as well as all my staff for their contribution and hard working as completed the success of this publication.

Khin Maung Maw
Director-General
Department of Fisheries

September 12 , 2015

ORGANIZATIONAL STRUCTURE OF DEPARTMENT OF FISHERIES, MYANMAR

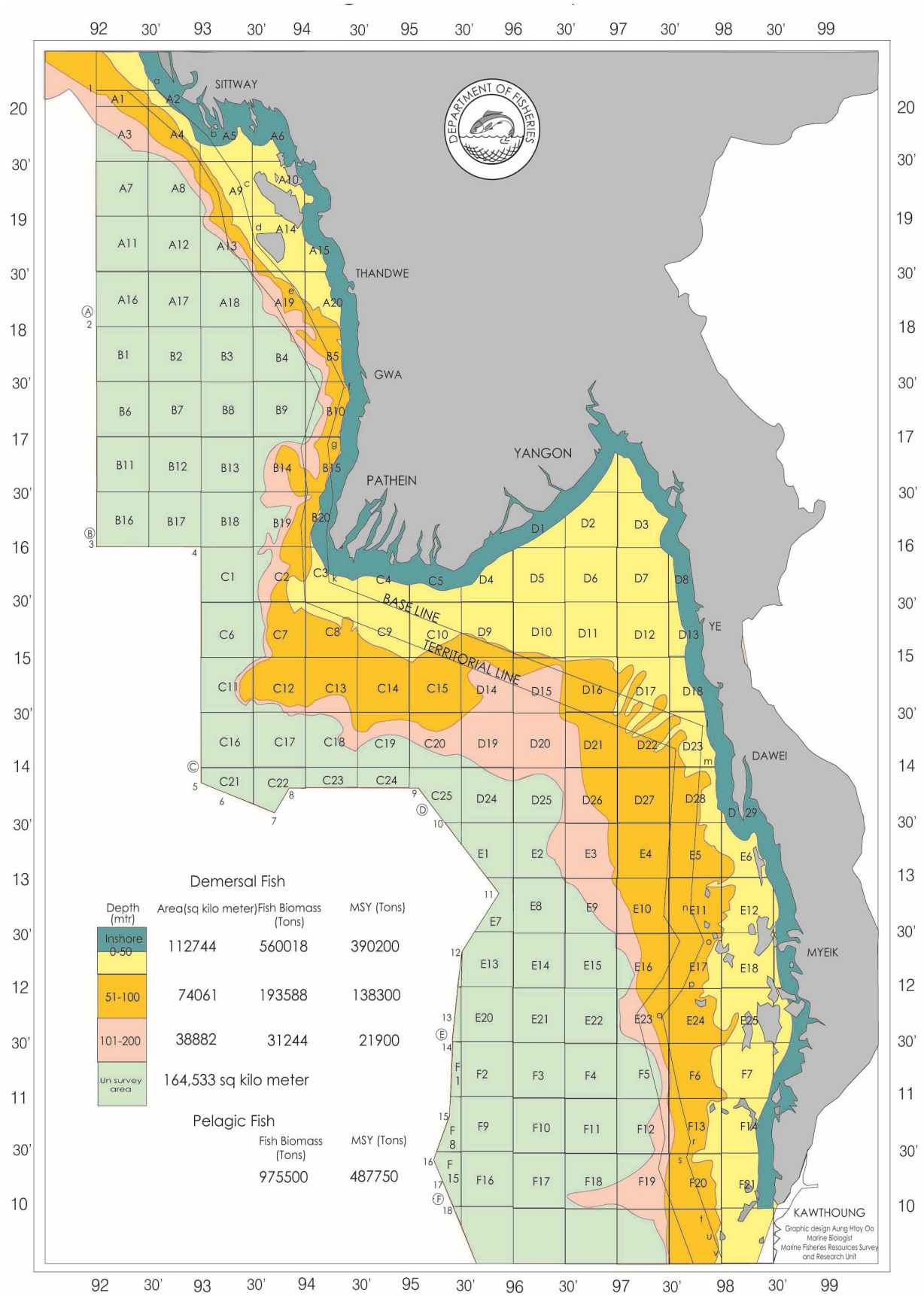
Officer	Other	Total
365	2104	2469



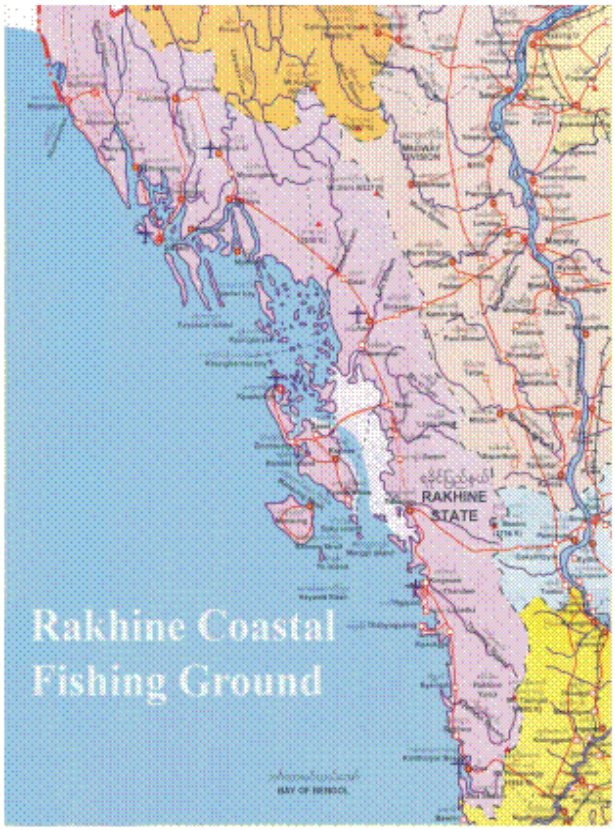
THE REPUBLIC OF THE UNION OF MYANMAR

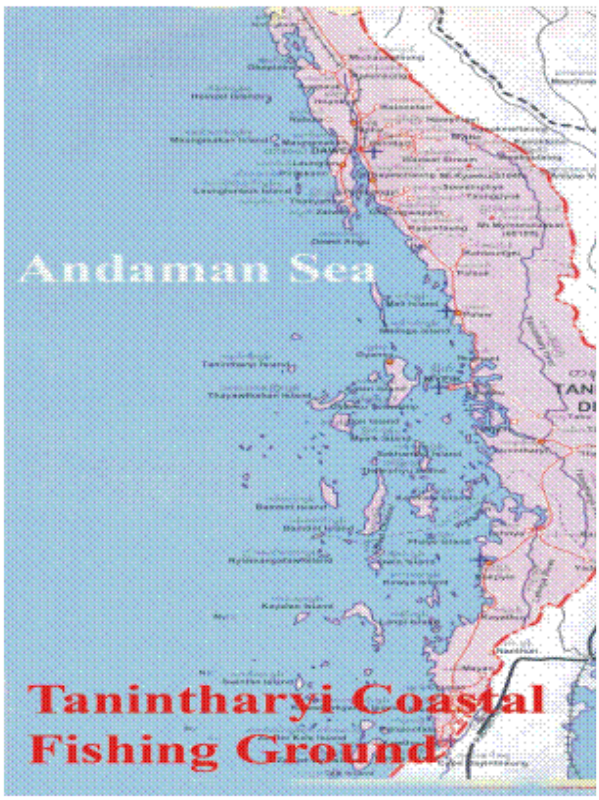
DEPARTMENT OF FISHERIES

Fishing Ground of Myanmar, Biomass, MSY and Un-surveyed Areas



Maps of Fishing Grounds





PART ONE

FISHERY BRIEF IN MYANMAR

Fisheries in Myanmar

Fisheries in Myanmar's Economy

1. The fishery sector is considered as the most important one after the agriculture sector to fulfill the protein requirement of the people of Myanmar and to provide the food security as well as to get the opportunity for the employment to a large number of fishery communities and rural dwellers. Moreover, fish is second only to rice in the Myanmar diet.

2. Myanmar is endowed with rich natural resources both in freshwater and marine fisheries. Nowadays, the increasing pressures from industrial and urban development and increased demand for fish and fishery products owing to population growth as well as global climate change can cause for damage to degradation of ecosystems including fisheries resources.

State of Fisheries

3. In 2014-2015 fiscal year, the total production of fish was 5.31 million metric tons in Myanmar. In this period, the production of freshwater fish was 2.46million metric tons (46% of the total fish production) and the production of marine fish was 2.85 million metric tons (54% of the total production of fish in Myanmar).

4. The exported amount of fish and fishery product was (0.338) million metric tons and the value of which was (482.252) million in US$ in 2014-2015. It was exported to (39) different countries. The exported amount was (6 %) of the total production of fish in Myanmar in this period, 2014-2015.

Type of Fisheries in Myanmar

5.The type of fisheries in Myanmar is determined by nature of catch. It can be classified into freshwater fisheries and marine fisheries. Freshwater fisheries consists of (a) aquaculture, (b) leasable, (c) open fisheries. Marine fisheries include (a) inshore fisheries and (b) off-shore fisheries.

6. In the inshore fisheries, the fishing boats operate within from shoreline to (10) nautical miles .In this area, the fishing boat which is build by traditional type with not more than 30 feet long or using less than a 25 HP engine power, operates for fishing. The fishing gears for using are driftnet, gillnet and long line.

7. In offshore fisheries, the offshore fishing vessels operate beyond from outer limit of the inshore fishing zone to the Exclusive Economic Zone (EEZ). The fishing vessels are more than 30 feet long or using more than 25 HP engine operating in offshore area. In this area, the commercial fishing gears are trawl net, purse seine, and long line.

Vision, Policies and Task on Ministry of Livestock, Fisheries and Rural Development

8. The Vision, Policies and Task on Ministry of Livestock, Fisheries and Rural Development are as follows;

Vision

In line with Millennium Development Goal, our ministry aims to develop rural area, to improve socioeconomic life for rural people and to narrow down the development gap between urban and rural areas.

Polices

- To be sustainable rural development
- To be food security
- To be food safety

Tasks

(1) Rural Development will be carried out in accordance with (5) Strategic Frameworks.

(2) Cooperation with Development Partnership organizations will be performed.

(3) Community Driven Projects will be set up and implemented.

(4) Trainings will be provided for socio-economic life development after organizing the rural youths.

(5) Public Private Partnership System (PPPs) will be applied to develop capital investment, technology and markets.

(6) Local and International investments will be invited to do associate with the State-Owned-Enterprises.

(7) Rule and Regulations will be laid down to protect private sectors and organizations undertaken socio-economic life development.

(8) International Aids and technical requirements will be made efforts to get for upgrading Research Laboratories to International Organization for Standardization (ISO) standard and Bio-Safety Level-2(BSL 2) to develop Livestock and Fisheries sectors.

(9) An audit system for fisheries and Fish Quality Control Laboratories will be extended upgrading.

(10)Rural roads, water supply, housings and electrification projects as well as infrastructures for rural development will be implemented.

(11)Good governance, transparency and publishing news will be carried out to narrow down the development gap between urban and rural area associated with the relevant ministries and development partnership organizations in line with a focal ministry.

(12) Review and collection of the basic statistics and data will be performed for development in cooperation with the relevant ministries.

Management of Fisheries

9. Department of Fisheries (DOF) is responsible for the development of fishery sector of the Union of Myanmar and the responsibilities of DOF for development and management in fisheries are as follows;-

(1)Conservation and rehabilitation of fishery resources;

(2)Promotion of fisheries researches and surveys;

(3)Collection and compilation of fishery statistics and information;

(4)Extension services;

(5)Supervision of fishery sectors;

(6)Sustainability of fishery resources;

Fish Price Survey

10. Department of Fisheries is implementing the fish price survey in Yangon every year.

Main Factors Affecting in the Production of Fisheries

11. The conservation of fisheries resources and the maintenances of ecological system are the main factors in the development of fisheries .Ecosystem of the world should be studied on the basis of their principle habitats for a wide variety of flora and fauna. Regarding the maintenances of ecosystem in fisheries, the management of conservation in the freshwater bodies (ponds, lakes, rivers, dams) which provide good habitats for phytoplankton, zooplankton, including aquatic plants and fishes and the conservation of marine ecosystem approach in marine water and its habitats to numerous plants, animals like zoo plankton, fishes, shrimps, oyster and so on., should also be studied as well. Moreover, the conservation of mangrove forest wetland and land-based ecosystem are substantial for development policy with a sustainable basis.

12. As we all know, mangrove are a source of shelters for fish. Many of coastal species spent the critical early stage of their lives in mangrove waters. So, the mangrove conservation is essential to save fisheries resources. Consequently, it ensures the sustainability of fisheries in the long term. Besides, the maintenance of ecological system is the conservation of reef and coral and declaration the marine protected areas (MPAs). It is the effective approach to improve the marine environment. The understanding of ecosystem function and its maintenance can help the development of fisheries in a sustainable manner.

13. The weather conditions depend on the environment. Deforestation is one of the factors for destroying the natural environment. So the forest conservation is needed by everybody. In the fishery sector, another important thing is the prevention of the fish disease which has been a difficult problem for fish-farmers. So, the sufficiency on the supply of good water quality is an essential matter.

14. Moreover, The public awareness for environment is very important for the sustainable fisheries and the people should be educated about the environment not to do over fishing and degrading the environment which are harming them-selves. It is, because we are being a part of the complex network of its environment.

The Role of the Private Sector in Fisheries

15. The role of the private sector of fisheries in Myanmar is operated by private entrepreneurs who can manage their business in their own ways in accordance with the rules and regulations which are laid down for them by the Government.

16. Regarding on this matter, since 1988 Myanmar made some dramatic and radical changes in social, political, and economic fronts. From that time onward, the market oriented economic system has been adopted in Myanmar. Since then, all fishery business in Myanmar was carried out by the private sector. Consequently, all state owned infrastructure of fishery sector such as, fishing vessels, ice-plants, processing plants, cold stores, fish-meal plants, canning plants etc. were sold out or leased to the private owners by the Government.

Legal Affairs

17. There are four relevant fisheries laws promulgated by the Government of Myanmar to manage the fishery industry and to protect the fishery resources more efficiently.

No.	**Year enacted**	**Name of Fisheries Laws**
1	1989	Law relating to the fishing rights of foreign fishing vessels
2	1989	Aquaculture Law
3	1990	Myanmar Marine Fisheries Law
4	1991	Freshwater Fisheries Law

18. After enacted these four fisheries law, the Government of Myanmar promulgated the two amending laws. These are as follows:-

No.	Year enacted	Name of Amending Laws
1.	1993	Law amending the Myanmar Marine Fisheries Law
2.	1993	Law amending the law relating to the fishing rights of foreign fishing vessels

Taking Action to the Illegal Harvest

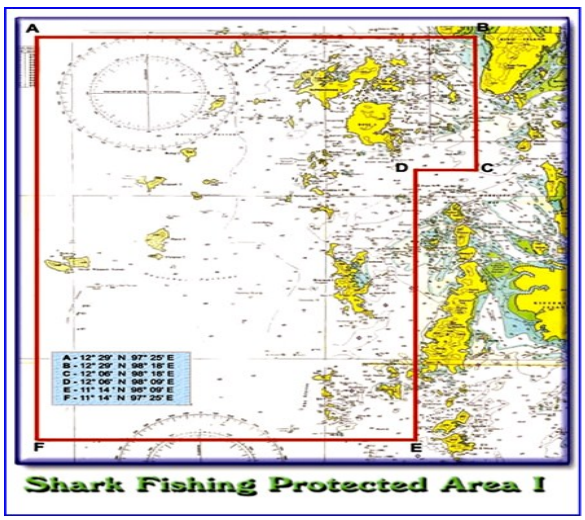
19. Department of Fisheries manages the conservation of the fishery resources. With regard to the conservation of the fisheries resources and to maintain for the long- term of the fisheries resources, DOF is managing to stop the illegal harvest for exporting such as alive mud crab (not allow to export which is (100) gram down weigh).

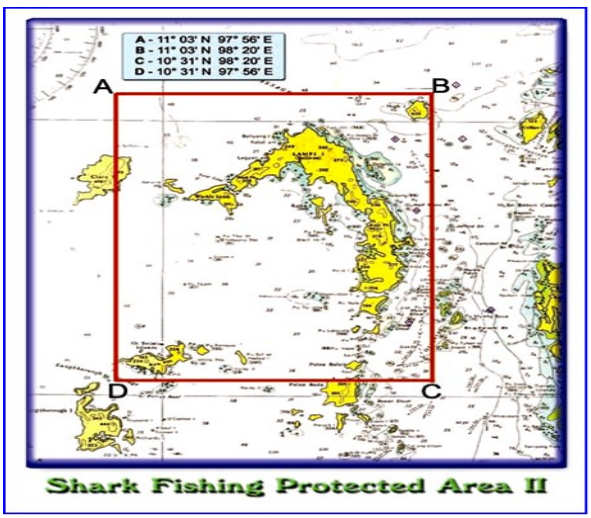
Food Security for Myanmar

20. For food sufficiency of Myanmar people including living people in rural area, the plan of implementation for food security were carried out by Department of Fisheries of Myanmar with the releasing fish fingerlings into natural resources such as lakes, dams, reservoirs, and open waters and the genetic improvement in rohu(*Labeo rohita*) to achieve the purpose of getting more and more growth rate of fish and the increase of fish production of per acre in order to get more income by the fishers and fish farmers. Moreover, Department of Fisheries has initiated and encouraged the paddy cum fish farming in Myanmar. Since 2009, the Department of Fisheries under the Ministry of Livestock ,Fisheries and Rural Development has been carried out the implementation of genetic improvement in Rohu(*Labeo rohita*) with the short-term and long-term planning.

Marine Protected Areas (MPAs) and Marine Park and Marine Reserve

21. Conservation of fisheries resources has always been the primary concern of the Department of Fisheries, so Marine Park and Marine Reserves as well as fisheries protected area have been established under the Fisheries Law of Myanmar. Lampi island of the Thanninthayi coast has been designated as Maine Park and Marine Reserve in 1996. And then, regarding the shark resources conservation, no-body can conduct shark fishing operation in the protected areas stretching from" Rose" island to " Lampi" island; so Mergui Archipelago is famous for their shark, ray, coral reefs and other marine creatures and that is why in this area shark-watching dive tours are very popular with the tourists, who come to Myanmar from around the world.





FISHERIES MANAGEMENT DIVISION

Management Measures in Marine Fisheries

Measures in Collaboration with ASEAN Members Countries for Combating IUU Fishing

Department of Fisheries has been collaborating with ASEAN members' countries combating IUU fishing through the project on the promotion of Sustainable Fisheries and IUU fishing -related Countermeasures in the Southeast Asia. One of the main activities of the project focuses on the Promotion of Fishing license, Boats Registration, and Port State Measures in Southeast Asia which is being carried out through a series of regional meeting.

Regional Fishing Vessel Record for (RFVR) Vessels 24 m in length and over

Department of Fisheries has been collaborating with SEAFDEC in establishment of the Regional Fishing Vessel Record –RFVR which is agreed by the regional countries. DoF will enhance to collaborate with ASEAN Members countries in enhancing the RFVR as an effective tool to combat IUU fishing. DoF (head office) recorded the most item of RFVR and some items were added in these records. The instruction has been made to collect the data for RVFR to all regions and states.

Implementation of the Port State Measure

DoF has signed the Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing which was approved by FAO for accession. DoF has been implementing the Port State Measures for all fishing vessel in accordance with Myanma Marine Fisheries Laws and the Law relating to the Fishing Rights of Foreign Fishing vessels. Existing Fisheries laws include the provisions to implement the port state measure.

DoF does not allow fishing the national fishing vessels in the high sea or EEZ of foreign countries. DoF is preparing the draft of the Union Comprehensive Fisheries Law due to the politic, administration, social and economic reforms in accordance with the National Constitution of Myanmar. It will be included provisions concerning with fishing of local fishing vessels in high sea in the new fisheries law.

Enhancing the Monitoring, Control and Surveillance System- MCS

DoF has been conducting the Monitoring, Control and Surveillance activities for all licensed fishing vessels. In Monitoring, Control and Surveillance system, it is included the air surveillance, Sea Surveillance and land surveillance. DoF has been inspecting all licensed fishing vessels at the check points with one stop Service which comprises of concerned department such as Custom department, Immigration, Myanmar Port Authority, Myanmar Police Force etc. Sea surveillance is carried out by Myanmar NAVY which was transferred the inspection power by DoF. However, it needs to promote inspection and law enforcement to combat IUU fishing.

DoF will encourage the installation of Vessel Monitoring System- VMS in fishing vessels to upgrade the Monitoring, Control and Surveillance-MCS system. At the same time, DoF endeavors to set up the National Plan of Action with assistance of EU in 2015. NPOA will be supported for more effective MCS.

Fishing Capacity and Responsible Fisheries Practices

There are 2736 offshore fishing vessels and 26222 inshore fishing vessels in Myanmar in 2014. Fisheries resources are decreasing according to the result of survey. Recently, Myanmar is taking action plan for managing fishing capacity not to allow the new build or import of commercial fishing vessels and not to increase the numbers of trawlers.

Preventing the Entry of Fish and Fisheries Products from IUU Fishing Activities into the Supply Chain

Myanmar has been conducting implementation of Country of Origin –COC for all Myanmar Fisheries Products, the Product Movement Document – PMD for the traceability of fisheries products, and Catch Certificate Scheme for the Marine Fisheries Products in order to preventing the entry of fish and fisheries products from IUU fishing into the supply chain.

ASEAN Catch Documentation System

DoF has been implementing the Catch Certificate Scheme which is approved by European Countries since 1-4-2010. DoF issued the catch certificates for Myanmar fisheries products that exported to 8 foreign countries from 11 local companies.

Ecosystem Approach Fisheries Management implementation (EAFM)

Myanmar has notified closed season, closed mesh size, prohibited fishing gears and method, fish protected areas, prohibited species, crab and lobster protected area in both inland and marine fisheries. DoF need to conduct the evaluations for these measures and encourage for the development of these activities.

Inland Fisheries Management in Myanmar

For Inland fisheries Management of Myanmar, DoF has been conducting the activities such as maintaining production, recruitment of fish stocks and rehabilitation of habitats.

In order to maintain the fisheries productions, DoF has been conducting the effective collaboration with fishers for preservation of indigenous species, releasing the fingerlings into the natural water bodies, repairing and maintaining of fisheries habitat.

To encourage the recruitment of fisheries resources, May, June, July which spawning season, was notified as closed season in the whole country.

For sustainability of the freshwater fisheries, DoF need to conduct more research and development for the annual stock assessment, data collection for production of specific fishing gear, preservation of fisheries habitats, spawning and nursery grounds, effective use of resources, value added products.

DoF has been implementing sustainable fisheries management in accordance with the Freshwater Fisheries Law (1991) till 2011. According to politic and administration reform of government, the management power of inland fisheries has been transferred to regional and state government on 16-4-2011. All local government has enacted the Regional or State Freshwater Fisheries Laws for fisheries management at the present time. Union government set up the guide lines for formation and institutional framework of rural communities including fisheries communities. DoF has been conducting to develop the fisheries institution for responsible fishing practice.

Aiming to promote the functions of DoF, the proposal of research leasable fisheries was submitted to MOLFRD. It is aimed to prevent the extinction of indigenous species and fisheries habitat, promote the fish production and collect the actual data of leasable fisheries.

It was established 11 researched leasable fisheries in 4 states and 7 regions as approval of Union Government since December 2014. State and Regional Governments has agreed the establishment of researched fisheries and approved the choice of leasable fisheries. MLFRD invited the fisheries consultants to discuss the work plans of these fisheries. Fisheries consultants of MLFRD suggested to;

-identify the survey design and form for data collecting and analysis

-train and facilitate for enumerator and surveyor

-collect the biological facts of cultured fish

-choose the leasable fisheries which is large area or mass production in priority

- conduct the workshop regularly

DoF set up the long term and short term work plan of each leasable fishery. MLFRD approved the work plans of these leasable fisheries .MLFRD supported the fund (10 million kyat) and long term permission (5 Years) with constant fees for these researched fisheries. In short term work plan, it is included:

a. formation of Management Unit and Task Force
b. Permission of leasable fisheries
c. Monitoring and control in spawning season (May, June , July)

d. renovation of map in current situation of leasable fisheries
e. data collection for fishers , fishing gears , fish , production, etc
f. applying the Capture based system and Culture based system
g. Reporting monthly and annually
h. Maintenance of leasable fisheries
i. Fry collection of indigenous species
j. Financial management
k. Conducting workshop

Annual work plan will support long term work plan and permission. Underprivileged performance of lessee may cause the rejection of long term permission. The lessee has responsibilities to carry out the culture based and capture based systems, maintenance of creeks and assistance for the data collecting by the DoF. In 2014-2015, all researched leasable fisheries have been conducted 100% of the operational works and 70% of the researched works. The lessee will be continued their works year by year till 2015. The researched leasable fisheries will be supported for the resources conservation and sustainable fisheries development as well as model sites for leasable fisheries.

Long Term Permission for Leasable Fisheries

Inland water fisheries management is carried out in accordance with the following objectives:

-to develop the fisheries sustainably;
-to prevent the extinction of fishery resources;
-to safeguard and prevent the destruction of freshwater fisheries resources and habitats;
-to manage the fisheries and take action in accordance with the law.

Habitats in most of leasable fisheries are declining due to siltation, agriculture operations, mining and road and dam construction. Declining of habitats , illegal fishing and over fishing are main causes of depletion of fishery resources. DoF set up the guidelines to prevent the declining habitats and fish stocks in the leasable fisheries since 1992.

In the guidelines, lease holders (lessees) must take the responsibility of carrying out the following functions:

-Repair of the water ways where fish migrate
-stock enhancement
-conservation of fisheries habitats
-To carry out these functions, lease holders (lessees) are granted long term lease (3 years). Lessee who receives long term permission does not need to bid during auctions.
-Since 1997, DoF has initiated culture based system and capture based system to promote stock enhancement.

Long term permission aims to;

-prevent the extinction of indigenous species and depletion of fisheries habitats

-maintain fish production from leasable fisheries

-monitor and control illegal fishing in leasable fisheries

-encourage responsible fisheries practices

The directive to adopt the guidelines for long term permission was issued in 1992.

In the guidelines, lessees (lease holders) submit proposals that include work plans to DoF for long term lease. There are about 500 leasable fisheries which are permitted to conduct long term operation in a year. One third of leasable fisheries are responsible for preparing the fish habitats and the others emphasize on stock enhancement.

Once permitted, lessees implement their work plans. DoF inspects and supervises the performance of lessees. Capture based system has been applied in leasable fisheries in long term to promote the conservation of indigenous fish Culture based system gives tangible results in terms of increased fish production in leasable fisheries by stocking fish seeds during transition, i.e. nursing fish seeds in net enclosures (pens) or cages or earthen ponds for some times and then releasing into leasable fisheries Culture based system is successfully applied in most of leasable fisheries in Myanmar. To use the systems, lessees need to prepare the fish habitats.

Fishers have to pay attention to rehabilitation of habitats even if this is not included in their work plans. If they do not do so, wild fish could not reach their spawning and nursery grounds in leasable fisheries and result in low production.

Digging of shallow water ways, removal of fallen trees and small bushes, creation of nursery and spawning grounds in some areas are the main activities of lessees.

Capture based system has been applied in leasable fisheries in long term to promote the conservation of indigenous fish. Culture based system gives tangible results in terms of increased fish production in leasable fisheries by stocking fish seeds during transition, i.e. nursing fish seeds in net enclosures (pens)or cages or earthen ponds for some times and then releasing into leasable fisheries. Culture based system is successfully applied in most of leasable fisheries in Myanmar.

Aquaculture Division

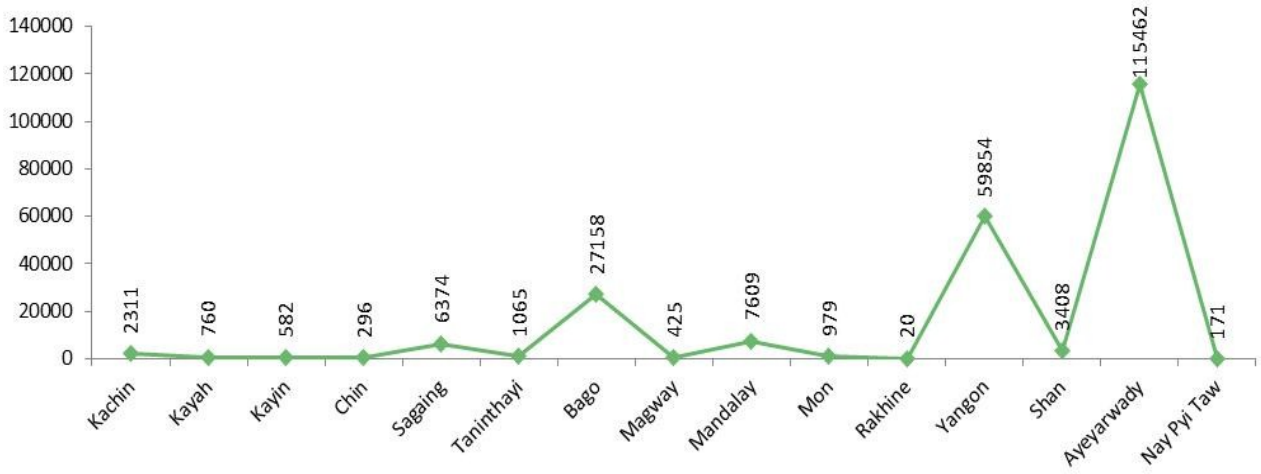
Aquaculture Division comprises with three sections such as Fish and Shrimp Culture Section, Aquatic Animal Health and Disease Control Section and Water Quality Management Freshwater Fish Research Section. Aquaculture Division is responsible for producing good quality fish and prawn/shrimp seeds for the fish farmers, to ensure replacement of fish and prawn seeds into the natural water reservoir and men-made water bodies, to conduct research on marine and fresh-water aquaculture, to educate and transfer technologies of aquaculture to fish farmers and to conduct environment-friendly aquaculture methods for sustainable fisheries development.

Duty and function of Aquaculture Division

a. To ensure conservation of fisheries or aquatic resources not to be depleted,
b. Monitoring, control and given good management and regulation on aquaculture industry,
c. Strengthening good management for the development of environment-friendly aquaculture system and the encourage of cultured based capture fisheries to increase of fish production,
d. Issuing the amendment of aquaculture laws, legislation and regulation as requirement in line with modernized technologies, location and duration,
e. Supervision of expertise for the establishment of short-term and/or long-term aquaculture development programs,
f. Data collecting, recording and analyzing on fish production and utilization of fisheries resources, and aquatic biodiversity related to aquaculture in national water body,
g. Applying the international improved aquaculture system and ASEAN guidelines compliance with Myanmar weather and environmental conditions,
h. Support to conduct training and capacity building of skillful technology and techniques of aquaculture systems,
i. Seeking the improved technologies and providing extension and training for sustainable development and expanding of aquaculture industry as a whole,
j. Implementing and managing to be able to fully imposing of revenue for aquaculture taxes,
k. Regularly observing the aquaculture industry development as a whole and recording and reporting the extraordinary phenomenon of climate change impacts on aquaculture industry to higher authorities.

Aquaculture Development

Aquaculture areas increased from 12255 ha in 1990-1991 to 64438.8 ha in 2000-2001 and then to 180112 ha in 2010-2011 and 180614 ha in 2012-2013. Aquaculture production has also increased steady annually from 6397 MT in 1990-1991 to 128225 MT in 2000-2001 and 964256MT in 2013-2014. The production from aquaculture for food increased to 999629 MT in 2014-2015, which was an increase about 3% compared to 2013-2014 production.



Freshwater Aquaculture

Currently over 20 species of freshwater fishes such as major and common carps, tilapia and cat fishes are being cultured. Rohu (*Labeo rohita*) withstands as the most common and commercial culture species which is native to Myanmar. The wild stock rohu usually gets sexual maturity at least 4-5 year with minimum body weight of 5-6 kilogram. Repeated induced-bred rohu may attain sexual maturity at two years and sometimes less than two kilograms of body weight. It has been recognized as an indicator of genetically degradation of broodstock and has resulted in slow growth and fainted coloration of the fish. In this regard, Department of Fisheries (DoF) in collaboration with private hatchery technicians has tried to domesticate the rohu wild stocks and utilized as new generation. Actually the collection of fry and fingerlings has not been permitted so as to conserve and enhance the natural fish stocks. This is as a measure of follow-up of the Law Relating to Aquaculture that was promulgated in 1990. However in order to develop aquaculture particularly in producing quality seed, hatchery concerned farmers are allowed to collect the fry and fingerlings prior to permission of DoF. As a result, rohu aquaculture industry becomes more developed and promising. In order to promote and distribute the quality fish seed, DoF has tried to upgrade the broodstocks through its 27 fishery stations that are conducting seed production and providing technical assistance to farmer.

The new species of cultured freshwater fishes such as *Heteropneustes fossilis* (Catfish), *Ompok bimaculatus* (Sheat fish), *Notopterus chitala* (Spotted feather back), *Cyprinus Intha* (Nga phane), *Trichogaster pectoralis* (Snake skin gouramy), *Pangasius bacourti* (Stripped catfish), *Prochilodus luneatus (Taung paw nga tha lott)* , *Leptobarbus hoevenii* (Sultan fish), were induced breeding by experimental scale.

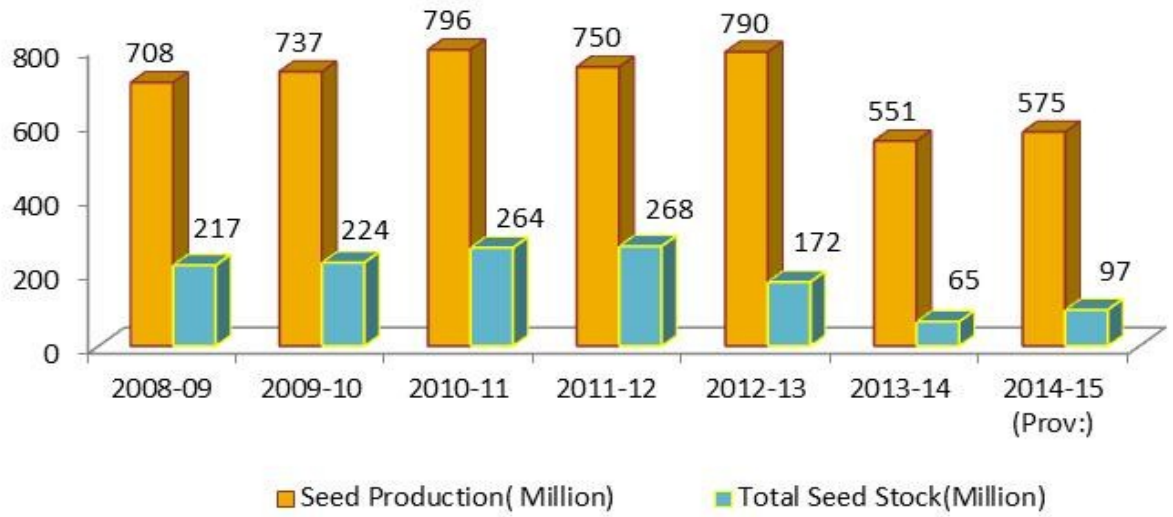
Workforce

In the field of aquaculture, a total of 32294 culturists were involved in various aquaculture systems. Due to Myanmar's aquaculture is mainly based on pond cultured system, mostly men labours are working in fish/shrimp ponds. There are 126293 number of permanent men labours working in 2014-2015 fiscal year.

Fish Fry and Fingerling Production

In 2014-2015, 26 hatcheries owned by the Department of Fisheries had managed to produce a total of 575 million freshwater fish fry and fingerling whereas 44 private hatcheries around Myanmar had produced an impressive amount of 3625 million fry and fingerling.

Accordingly the Department replenishes the natural resources by stocking the hatchery bred quality fish seeds into open waters like rivers, dams, reservoirs, lakes and impoundments. Data on production and stocking of seeds from 2008-2009 to 2014-2015 appears as a graph there under.



At the same time in order to increase fish production and supplementary income, Department also initiated the paddy cum fish farming in appropriate regions through demonstration 16369 acres of paddy field in States and Divisions were stocked with fish seed in 2014-2015.

Freshwater prawn culture

The most common and prioritized species is commercially important giant freshwater prawn, *Macrobrachium rosenbergii*. Monoculture of *M. rosenbergii* was conducted on semi-intensive level and a result with low production was gained. To minimize the operational cost of prawn farming the farmers changed to prawn and fish poly culture practice where prawn is stocked as minor component totaling 4070 hectares of prawn and fish polyculture farms in the whole country. Only few areas of prawn monoculture farms are reported. Anyway the hatchery operation and culture technique become well established in government and private sector.

Recent year, many fish farmer's benefits from poly-culture of freshwater prawn and major carps due to high price of freshwater prawn. Many backyard hatcheries for freshwater prawn are being set up to fill up the gap of high demand freshwater prawn seeds.

Shrimp Culture

Penaeus monodon has been initiated since early 1980 practicing trap and hold method particularly in western coastal area. Natural post-larvae of *Penaeus monodon* were trapped into the pond during the high tide period through sluice gates. There were no inputs in terms of pond preparation, eradication of predators, water fertilization, feeding etc. However 30 to 50 kilograms of large size of shrimp were harvested. As the ponds were usually as large as 50 to 100 hectares, the shrimp production could make more than enough money for the shrimp farmers. Having no laws concerned with aquaculture, those shrimp ponds existed as illegal ponds up to 1990.In the year 2000, the Ministry of Livestock and Fisheries reinforced and encouraged many potential investors to be involved in the shrimp aquaculture development. At the same time, the Union of Myanmar formed a State Level Committee to promote a drastic development of shrimp aquaculture industry by formulating first three-year plan from 2000 to 2003 and second plan from 2003 to 2005. Since 2000, a number of semi-intensive and intensive shrimp farming emerged. Up to 2002, there found success and failure in semi-intensive and intensive shrimp culture .In the year 2002, a pilot demonstration on Mangrove Friendly Shrimp Culture was conducted as a measure of verification of semi-intensive shrimp culture technique through collaboration of Myanmar DoF and SEAFDEC-AQD . Demonstration pond with 1.4 ha and 0.72 totaling 2.12 ha could produce 11.1 metric ton of shrimp with average size of 50 pcs / kg. At the same time private shrimp farms nearby the demonstration pond suffered failure due to severe occurrence of white spot disease .The private farmer were invited and disseminated the comprehensive technology . But they were not so much interested in MFA technology. Similar demonstration was repeated in 2005 and also gained the success. A few private shrimp farms applied the MFA technology with success but later due to market and shrimp price constraints shrimp farming has been done only by a few farmers.

As of 2014-2015 Myanmar has three types of shrimp farming : Semi-intensive shrimp ponds 4383.21 hectares , Extensive plus shrimp ponds 91778.67 hectares and Extensive or traditional shrimp ponds 232876.87 hectares totaling 229038.75 hectares and production from those ponds were reported at 65245.07 MT. Recently, the Department of Fisheries huge encouraged to development of fish and shrimp culture in every states and regions for self -sufficient of local consumption and export market .

Status of Shrimp Hatcheries

In the year 2000, total number of shrimp hatcheries amounted to 13 only and in 2003 altogether 26 shrimp hatcheries(include in Backyard Hatcheries) were fully operating with capacity of 190 million shrimp post-larvae. Hatchery system is mainly based on advanced method. The breeders are available from Bay of Bengal and Andaman Sea. It is well famous that the broodstocks from Andaman Sea are supreme in terms of quality and size .

White shrimp culture

Penaeus vannamei has the many advantageous factors for culture but it may also cause the negative impact to other shrimp aquaculture industry. DOF has been aware that vannamei may carry and outbreak the Taura Syndrome Virus (TSV). After a regional workshop in 2005 at Manila, that assessed the culture of vannamei ASEAN countries agreed to culture at reasonable documentation. At present 3-4 private farms are trying experimental culture of vannamei.

Hatchery system is mainly based on advanced method. The breeders are available from Bay of Bengal and Andaman Sea. It is well famous that the brood-stocks from Andaman Sea are supreme in terms of quality and size. Only PCR negative the Pacific white shrimp SPF *vannamei* seeds has been permitted to import for culture in domestic water.

Marine Finfish Culture

In terms of marine fin-fish farming, seabass, red snapper and grouper are the most common and commercial species in Myanmar. Stock fish or the fish seed are usually collected from the wild. But the seed production technology of seabass has been succeeding since 2004 in both DoF and private sectors. First the broodstocks were collected from the wild and later induced breed seabass are used as broodstocks. However the grow-out culture of seabass is done by only a few farmers. It is due to the fact that adequate supply of trash fish and formulated feed is inconsistent. Grouper spp. also conducting on seed produced at marine research station of DoF, Tanintharyi region by experimental scale.

Others Mariculture

Some experimental farming of oyster, clam, seaweeds are under process in Myanmar. The farming of *Eucheuma* sea weed has been started since 2003 through the collaboration of DoF, a Korean private company. The Koraen company brought in the seaweed of *Eucheuma cottonii* and domesticated as the seed stock for other private farmers. Upon the whole, DoF Myanmar is carefully assessing in the promotion of proper new stock strains to produce better quality seed. At present land area of 15 hectare has been allocated to MSC to construct a processing plant and construction is under way. The new endeavor will create employment opportunity for local people and also technology transfer to the local entrepreneurs and communities. The production of dried seaweeds are about 300 tonnes per year.

Mud crab seed production

Mud crab fattening has become the booming industry as domestic consumption and export demand are growing rapidly. Soft shell mud crab farming has become very popular as it commands high price. At the same time, supply of crab juveniles from nature is decreasing due to over exploitation, habitat deterioration caused by man impact and world climate change. Most of Asian countries are thriving hatchery seed production of mud crabs. Adequate supply of mud crab seed for soft shell mud crab farming has become urgent need and included in the future plan. However hatchery operation performs very low survival rate. Myanmar DoF has planned to expand more mud crab hatcheries at suitable areas based on success of the present hatchery operation and recommended cooperation of regional institutes and among the countries in the region by conducting more research and study should be conducted in order to get high survival rate.

Cold Water Species Aquaculture

Some cold water aquatic species are naturally existing in the northern most part of the country where temperature is very low. DoF is planning to develop a pilot scale grow-out culture and also a backyard hatchery and educate the local ethnic group. That shall come out as a measure of rural development. Currently DoF officials and farmers have been visited Vietnam and studied development aquaculture. Some private companies are interested in sturgeon fish farming. In this regard culture of sturgeon fish is included in the future plan obtaining biotechnology from Vietnam.

Ornamental fish

The ornamental fish industry is one of the main sectors to generate income through export. The production of ornamental fish was decreased by 1.4 million pieces in 2013-2014 compared to 1.45 million pieces in 2014-2015. Its value also decrease to US$ 0.16 million from US$ 0.194 million in the previous year.

Aquaculture for rural development

Promote aquaculture as an integrated rural development activity within multiple use of land and water resources available through inter-agency coordination in policy formulation, project planning and implementation, stakeholder consultation, extension services and technology transfer. One of the national policy is the poverty alleviation and to carry out rural development through agriculture and other sectors. Actually about 70 percent of the country people are living in country -side and remote areas. JICA incorporated and collaborated with DoF by establishing JICA unit at DoF and started its project plan in 2005. The strategic project plan is firstly conducting on-site training at appropriate areas to the villagers on small-scale aquaculture. Then secondly it implemented demonstration based on self-participatory approach. Thirdly JICA provides 70 percent of the cost for village level community farming that shared 30 percent. Profit sharing basis is to keep 50 percent for next operation, 20 percent for donation to the nearby school or village clinic and 30 percent is to share for community members. JICA project completed in 2013 June. Based on evaluation of effectiveness and capacity needs, JICA is now continue projects from 2014 March in Dry Zone Myanmar . At the same time one NGO that is Ecosystem Conservation and Community Development Initiative (ECCDI) affiliated with WCS is planning to conduct village level training on small-scale aquaculture and later to support village owned fish ponds particularly at Nargis hit areas.Moreover, ACIAR, KOICA also supporting and cooperation with DoF for improving research & development of Myanma's Inland & coastal fisheries.

In accordance with the guideline of the Ministry of Livestock, Fisheries and Rural Development, fisheries sector of evergreen village development project supported 30 million kyats as revolving fund for each villages of 180 villages where have potential to develop in fisheries sector in 15 Regions and States in this fiscal year from the funding sources of government's capital budget and Department of Fisheries will try the best to achieve the objective of the development of fisheries sector for rural people. In this fiscal year, Department of Fisheries also provided and distributed the total number of local indigenous fish (1432545) including Snake Head Fish (Nga Yant), Climbing perch (Nga Pyayma), Clarias catfish (Nga Khu), Stinging catfish (Nga Gyi) and Channa sp; (Nga Panaw) for rural small scale fish farmers to get extra income by doing small scale fish farming, to enrich the local indigenous fish species and substantially existence of fisheries resources. In addition, Department of Fisheries constructed 62 numbers of fish backyard hatcheries at 14 different Regions and States in this 2015 fiscal year for conducting self breeding practice of fish to fulfill the needs of fish fry from rural fish farmers, for stock enhancement of fish seeds to creeks between paddy fields and for improvement of the production of fish seeds to conduct the cultured based capture fisheries at leasable fisheries.

Application of Good Aquaculture Practices (GAqP)

The Department of Fisheries of Myanmar already initiated Good Aquaculture Practices as national standard in fish and shrimp farming since 2011.The Department of Fisheries established as National Task Force for implementation of GAqP application in Myanmar last year and considered to follow up and practices on ASEAN's Standard on GAqP for shrimp farming in compliance with the current status of shrimp farming practice in Myanmar. Myanmar learns and tries to follow the Strategies Plan on the Development and Implementation of ASEAN shrimp GAqP. Support to GAqP, DoF established the Directives and Regulation for prohibiting the use of chemical in aquaculture.

Recently, cultured areas of about 4439.55 hectares for fish, shrimp and soft-shelled crab farming have applied to get national GAqP certificates. The Department of Fisheries has issued GAqP certificates on 1549.2 hectares for 7 farmers during this year.

Aquaculture support services

In 2013-2014, According to the coordinating plan among a Aquaculture Division, Regional and State of DOF and the fish hatcheries stations will support to fish farmers for providing breeders and technical advices to small-scale farmers for poverty reduction and rural development at the township level. Under supervision of aquaculture division, aquatic animal health and disease control section and Freshwater fish research section are (3)groups of Mobile Team giving on-site support services for fish farmers who want to check their ponds water/soil parameters and health condition of their cultured fish for preventing the fish disease. In addition, Aquatic animal health and disease control section also provides PCR check on shrimp diseases of shrimp seeds for shrimp farmers. In 2014-2015, Freshwater fish research section gave services of water on analysis 1489 cases and soil analyses on 97 cases also include Tontay Lab and Mandalay Regional Lab. Aquatic animal health and disease control section provided support services of on-site field analyses on 61 cases, lab disease analysis on 31 cases and PCR check for disease on 30 cases.

Training programmers such as Freshwater fish seed production and genetic improvement, Basic freshwater fish/prawn culture conducted in some DoF stations and Sagaing Institute of upper Myanmar. Deputy Fishery Officer training in Fishery Science in Technology in Yangon.

RESEARCH AND DEVELOPMENT DIVISION

Activities of Inspection and Certification Section in 2014-2015

Inspection and Certification Section take responsibility for the quality of exported fishery products to meet international standard requirements and no harm for consumer according to this responsibility. Inspection and Certification Section has collaborated with relevant organizations in EU, Vietnam, China and ASEAN.

Inspection and Certification Section is responsible monitoring, control and surveillance (MCS) activities to ensure the quality and safety of fish and fishery products by enforcing to comply with international food safety standard requirements and importing countries requirements such as EU, China, and ASEAN etc. At the present Inspection and Certification Section has been formed with (2) officers and (24) staffs to confirm processing establishments which have complied or not food safety management systems.

Inspection and Certification Section has carried out to improve quality wholesomeness and safety of fishery products for human consumption and minimized post harvest loss to develop and apply quality and safety management systems that ensure food safety through the implementation, validation and verification of Hazard Analysis Critical Control Points(HACCP) based system, to improve inspection practices and harmonies with international inspection systems adopt quality and safety management systems as appropriate to the fishery industries to develop and implement GMP guidelines and compliance standards.

And then, Inspection and Certification Section issued the factory license for (116)processing establishments in 2014-2015 fiscal year to monitor and control for the procedure of processing establishments as the requirements of international standard for food safety and quality assurance.

Besides, Inspection and Certification Section has already formed four inspection teams and regularly examined the implementation of food safety management system such as GMP, SSOP, and HACCP due to official control manual.

Myanmar has been exporting only frozen wild caught fishery products from (20) approved establishments, Inspection and Certificate Section has been performing to export aquaculture products to EU member countries assistant by EU. National residue monitoring plan (2014-2015) was sent to DG SANCO after discussing and onsite training with government inspectors and laboratory staffs in last year. National residue monitoring plan (2015-2016) has already been sent to DG SANTE.

Currently, Inspection and Certification Section has implemented "Capacity Building to Improve Market Access for Fish and Fishery Products- TCP/MYA/3401(D)" for (3) years by FAO assistance to train the government's inspectors, Laboratory person and stakeholders.

According to the FAO project, Ms. Suwimon, expert from FAO come and trained about requirement of food safety management systems such as GMP/ HACCP from (18.5.2014- 24.5.2014) to government inspectors and stakeholders. Mr. C.K Krishnan and Dr. Karunasagar, experts from FAO conducted and trained “Training on Explanation of Technical Regulation of Export Import Fishery Products of Myanmar, Traceability System and Training on Risk Analysis for Fishery Products” during October 2014. Ms. Suwimon conducted and trained “Internal Audit for HACCP System” from (23.2.2015) to (26.2.2015) for (18) government inspectors and (37) staffs of processing establishments.

An AEAN Rapid Alert System on food and feed (RASFF) is ongoing network for notification of direct or indirect risks to human health deriving from food or feed between competent authorities. DOF has participated in pilot Rapid alert system for food and feed since 2007 and contact with regional activities. Inspection and Certification Section has conducted the training for ASEAN Rapid Alert System for Food and Feed in 19th January 2015 to 21st January 2015 by Experts from Thailand.

Mr. Stephen Robert, Food Safety Expert from EU came and trained “Training on Regulatory Inspection of Fish and Fishery Products” for (31) government staffs from (18.8.2014) to (9.9.2014) and (12) government inspectors from (12.9.2014) to (16.9.2014) ,this training course as fresher course assistance by ASEAN Regional Integration Support from the EU (ARISE).

As Myanmar is one of the member countries of ASEAN, Inspection and Certification Section has implemented the ASEAN Regional Guidelines such as Implementation of the ASEAN Common Principle and Requirement for Food Hygiene, Implementation of the ASEAN Common Principle and Requirements for the labeling for pre- package food and Implementation of the ASEAN Common Principle for food Systems in establishments before ASEAN Free Trade Area.

Otherwise, according to ASEAN Economic Blue Print, Inspection and Certification Section has been implementing food safety issues related priority integrated sectors to harmonies in trading between ASEAN countries.

Activities of Analytical Laboratory Section

Continuously Maintain the Accredited Laboratory Comply with ISO 17025:2005

The Laboratory of Analytical Laboratory Section of Fish Inspection and Quality Control Division, Department of Fisheries has been accepted as an accredited laboratory in the field of Fish and Fishery Products for the Microbiological Test (TPC, Coliform, *E.coli, Salmonella, Staph.aureus*) and Chemical Analysis (Nitrofuran, Chloramphenicol) started at 27th June 2012, according to Accreditation No 1225/55. Now Laboratory was already finished re-assessment so certification has next two year from 27th June 2014 to 26th June 2016.

Participation the Proficiency Test (PT) Programme

Laboratory had participated the Proficiency Test once a year for Nitrofuran Metabolites and Chloramphenicol (Chemical) test for shrimp sample, PT provider form FAPAS-FERA, UK for Microbiological testing as TPC, Coliform, *E.coli, Salmonella, Staph. aureus* were participated PT from QMAS-LGC(UK).

Calibration Certificate for Measuring Equipment & Devices

For 2014 program of calibration by ISO 17025:2005 accredited laboratory's maintenance was finished and calibrated at May 2015, by Technological Promotion Association (TPA) from Thailand. All are 39 items.

Preventive Maintenance

The laboratory had contracted every year for regular Preventive Maintenance (RPM) between DoF, Sciex (Thailand) Co.,Ltd from Thailand and Amtt Co.,Ltd. from Myanmar for LC/MS/MS of 2014.Some of the Microbiological Lab's equipment and remaining Chemical equipments as HPLC and AAS also finished preventive maintenance by Okkar Thiri Co., Ld from Myanmar.

The Delegation visit to Laboratory

-Tokyo University of Marine Sciences and Technology(TUMST, Japan)
-European Union (EU)
-Department of Fisheries, Thailand
-Department of Medical Science (DMSc)
-Ministry of Health from Thailand
-United Nations Industrial, Development Organization (UNIDO)
-Giz, Deutsche Gesellsohaft fur Internationale Zusammenarbeit (GIZ)
-PTB, Physikalisch-technische Bundesanstalt

Action Plan for Future

Myanmar DoF laboratory had participated the Japanese Trust Fund VI project for Biotoxin Monitoring in ASEAN conducted by Marine Fisheries Research Department (MFRD), project period from 2013 to 2017.National Residue Monitoring Plan (NRMP) Progress report (2014-2015) and Annual plan (2015-2016) submit to EU, DG- SANTE.

Environment and Endangered Species Conservation Section

Ayeyarwady Dolphin Conservation Conducted by Department of Fisheries in Ayeyarwady River

Ayeyarwady (Irrawaddy) River is one of the biggest rivers in Southeast Asia, and it's the most dominant feature in Myanmar (Burma). This arises from Northern hill streams and through steep gorges upstream of Bhamo, and then flow the entire length of country, for approximately 2,200 km, before the reaches of Andaman Sea.

The 19th century naturalist Jo hn Anderson described Ayeyarwady (Irrawaddy) dolphin in the Ayeyarwady Rivers as morphologically distinct from *Orcaella brevirostris.*

The Department of Fisheries (DoF) protected and conserved the Ayeyarwady dolphin (especially established Ayeyarwady Dolphin Protected Area) the area between Mingun and Kyaukmyaung 72 Kilometers segment of Ayeyarwady River.

Every year the Ayeyarwady Dolphin monitoring and surveillance team which collaborate with Wildlife Conservation Society (WCS) and the Department of Fisheries staffs conducted visual boat-base survey, and the teams always identified and estimate the population and group size and threats to the dolphins between the protected area. DoF already printed poster for people awareness and a pamphlet (about Ayeyarwady Dolphin and conservation activities) to the local communities who live along the both river side of the river. Myanmar is one of the countries for Eco-tourism who can enjoy cooperative fishing practice with Ayeyarwady dolphin and cast-net fishermen. During the open season, at the upper reaches of the Ayeyarwady River, the cast net fisherman who conduct cooperative fishing practices cooperation with dolphin, it is one of the famous fishing practices of Myanmar. As a part of inland fisheries management for the sustainable fisheries development, Ayeyarwady dolphin conservation Team initiated and encourage the cooperative fishermen, to be practice pen culture a fish species (rohu) grow-out farming in natural water in the protected area of Ayeyarwady river segment and the Ayeyarwady Dolphin Conservation supported fingerling fish and fish pallet to those fisherman. After 3 months, some fish are released into natural water of Ayeyarwady River for the conservation of freshwater fishery resources; some are for the fishermen to get surplus income.

The Ayeyarwady dolphin conservation team conducted patrol the protected area twice a month and also conduct educational program in the Protected Area to prevent illegal fishing techniques and fishing gears which can harm the dolphin and fishes along the river.

The Second extension MoU (Memorandum of Understanding) signing ceremony was hold at the Ministry of Livestock, Fisheries and Rural Development, Ministry Meeting room on the 11st September, 2012, between the Department of Fisheries and Wild Life Conservation Society (WCS) USA, for the purpose of Research and Conservation activities among the endangered aquatic animals in Myanmar.

A wide range of research and conservation activities have been implemented in the protected area under a guidance of Department of Fisheries.

Department of Fisheries in collaboration with Wildlife Conservation Society (WCS) has been conducting Irrawaddy dolphin conservation, and WCS has a plan to extent in her conservation activities with Marine Program.

Research and Development Training Supervision Section

Department of Fisheries (DOF) is responsible for the development of fishery sector of the Union of Myanmar and the responsibilities of DOF for development and management in fisheries are as follow:

- Conservation and rehabilitation of fisheries resources
- Promotion of fisheries researches and surveys
- Collection and compilation of fisheries statistics and information
- Extension services
- Supervision of fishery sectors
- Sustainability of fishery resources

In order to implement above responsibilities, DOF has established three fisheries training centers, namely;

1. Gyogone Institute of Fishing Technologies (Yangon Region)
2. Pyapon Fisheries Training Center (Ayeyarwady Region) and
3. Upper Myanmar Fisheries Training Center (Sagging Region)

Human resource development in fishery sector and capacity building g are carried out through the trainings in the training centers. In the fiscal year 2014-2015, five training courses have been successfully conducted associated with the fields of Aquaculture, Fisheries Management, Post Harvest Technology, Fishing Gear and English Speaking & Computer: totally 812 trainees have been acquired knowledge of fisheries relevant fields. The various trainings for fishery taskforce skill development in (2014-2015) fiscal year are as follows;

No.	Training Course	2014-2015		Remarks
		No of Course	No of Trainees	
1.	Aquaculture	18	541	DOF Training Center (Sagaing, Pyapon); Fishery Station (Kume & Tha-Yet-Kone, Mandalay Region); Bago Regional Fishery Office; Padu
2.	English Speaking & Computer	1	20	DOF Training Center (Sagaing)
3.	Fisheries Management	3	103	DOF Training Center (Sagaing) & Institute of Fisheries Technology (Gyogone)
4.	Training on China Market Access Requirement	1	47	Institute of Fisheries Technology (Gyogone)
5.	Post Harvest Technology (Food Safety & Quality Con-trol)	2	101	Than-Lwin-Aye Cold Storage, A-Sin Village, Mawlamyine District, Mon State; Thayet-Pin-Chaung Village Track, Dagon New City, Seik-Kan
Total		25	812	

Currently, Department of Fisheries, Research & Training is under preparing the logistic arrangement for the project namely: “Artisanal Fishery and Aquaculture in Myanmar: Institutional Support for the Dissemination of the European Regulations and the Mediterranean Best Practices”

in Institute of Fisheries Technology (IFT, Yangon) by the support of Italian Development Cooperation with the Technical Support of CIHEAM Bari Institute, Italy with Euro 680,000 for one year project in order to upgrade IFT and support fisheries institutions in Myanmar.

Also IFT Yangon will conduct the vocational training collaborative with the International Trust and Business Co. Ltd in order to produce qualified sailors. The trainees will get the knowledge and awareness of International Fisheries Law, Sea Law so that they can work in local and international fishing vessels.

Work activities of Marine Fisheries Resources Survey & Research Unit

Our main goal for the fishery sector is sustainable development in this sector in the long run, not only to support the fish and fishery products for current population but also for future generation needs for their nutrition and food security. To do this, we are constantly trying in various ways with different section/unit under Department of Fisheries (DoF) in collaboration with local DoF staff and private sector, and also regional and international fishery related organizations/ institutes to meet our goal. Among them, Marine Fisheries Resources Survey and Research Unit is one of the units to making effort with the activities through conservation of fishery resources, research and development, human resources development and capacity development through training program under the arrangement of DoF and also Regional and International Organization.

BOBLME Project

There is sub-regional collaborative work for hilsa fishery management by three countries such as Myanmar, India and Bangladesh in the Bay of Bangle area under FAO/BOBLME project in order to support to identify hilsa stock structure through the measure of length-weight frequency distribution of the catches in those three countries including Myanmar.

Activity in MyFish

One of the mud crab research work has been done by MyFish project in collaboration with Department of Fisheries and ACIAR aim at to know the socio-economic status of fisher and to study market chain analysis of same species in Pyapone and Laputta Township in Ayeyawaddy Region.

Collaborate with Fauna and Flora International

Department of Fisheries and FFI-Myanmar Programme had agreed and signed Letter of agreement (LOA) in December 17th 2014 in order to collaborated in the fields of conserving endangered freshwater and marine species and ecosystem and environmental services in Kachin and Rakhine States, Ayeyawaddy and Tanintharyi Regions.

Marine Ecosystem Survey by Dr. Fridtjof Nansen Research Vessel

The marine ecosystem survey with the Research Vessel "Dr. Fridtjof Nansen " in Myanmar water have conducted the post monsoon survey in 2013 November and December by the R-V-Dr. Fridjof Nansen. It is funded by the Norwegian Government and survey period was (37) days. The Pre monsoon survey are now carrying out in Myanmar EEZ for (55) days to study fish population and genetic which can be changed in different situation.

Expected Outcome

The objectives of the present activities are as follows;

To calculate the optimal sustainable yield for the hilsa fishery in Myanmar.
To compare the current situation with the optimal fishery resources expioitation.
To find an economically and socially reasonable path from the current level of fishing effort to the optimal sustainable yield.
To Support the Conservation of Marine an Freshwater Biodiversity in Myanmar
To establish of Locally Managed Marine Areas(LMMAs) and Marine Protected Areas(MPA)
To get information on demersal fish abundance and biodiversity by demersal trawling where conditions for bottom-trawling are adequate.
To determine the distribution and abundance of small pelagic fish resources using acoustic methods and a systematic grid survey strategy.
To collect data on size distribution, further biological information and genetic material from selected species.
To establish as far as possible the distribution, abundance and composition of other taxa at different trophic levels along the shelf (Phytoplankton, Zooplankton, fish eggs and larvae).
To make mapping the environment conditions in the survey area.
To increase capacity building of trainees and young scientists.

Current research activities

Current research activity was being performed with FFI and Government staffs and other organizations on conservation survey and data collection in Kachin State and Tanintharyi Region. And also training activities are making under this program for conservation of coral reef, seagrass, shark identification and socioeconomic monitoring and result dissemination workshop were done in those regions.

International Relations and Projects Section

By the Invitation of the International, Regional Organizations and Partner Countries, DOF Staffs had participated in the meetings, workshops, seminars and trainings in other countries and the experiences and knowledge gained from those events will contribute the objectives of DOF in her continuing efforts towards achieving sustainable fisheries development for food security. The participated list of events was as follows;

No.	Organization	Training		Workshop/Meeting/ Seminor/ Duty		Delegation /Study Tour/Trade Fair	
		Freq:	Person	Freq:	Person	Freq:	Person
1.	AADCP II Project	-	-	1	2	-	-
2.	ASEAN-SEAFDEC	-	-	1	2	-	-
3.	BOBLME	-	-	19	43	-	-
4.	Bangladesh Myanmar Business	-	-	1	1	-	-
5.	CDCE	1	1	-	-	-	-
6.	CLS	-	-	1	3	-	-
7.	CP Co., Ltd	-	-	-	-	1	4
8.	CP Group	-	-	1	1	-	-
9.	EU	-	-	1	3	-	-
10.	FAO	-	-	7	8	-	-
11.	FAUNA & FLORA	-	-	1	1	-	-
12.	FFRC China	-	-	-	-	1	8
13.	Green Field Co., Ltd	-	-	-	-	1	1
14.	ICDF	1	2	-	-	-	-
15.	IOSEA	-	-	1	1	-	-
16.	JICA	2	4	1	1	-	-
17.	JST	-	-	-	-	1	11
18.	JTF-Vi	1	2	-	-	-	-
19.	KMT(Koera Maritime Institute)	-	-	-	-	1	3
20.	KOICA	-	-	3	7	-	-
21.	LIFT	-	-	1	4	-	-
22.	MFF	-	-	1	1	-	-
23.	MOFCOME	1	1	1	1	-	-
24.	MOFE &CC	-	-	1	1	-	-
25.	MY Fish	1	1	1	2	-	-
26.	NACA	-	-	4	4	-	-
27.	OIE	-	-	1	1	-	-
28.	NTOU(National Taiwan Ocean	-	-	1	2	-	-
29.	SEAFDEC	1	2	15	22	-	-
30.	TICA	2	4	-	-	-	-
31.	TUMSAT	-	-	2	3	-	-
32.	UFT	-	-	1	4	-	-
33.	UNEP	-	-	1	1	-	-

No.	Organization	Training		Workshop/Meeting/		Delegation /Study Tour/	
		Freq:	Person	Freq:	Person	Freq:	Person
34.	USAID	-	-	1	1	-	-
35.	Gov of America	-	-	1	1	-	-
36.	Gov of Australian	1	1	-	-	-	-
37.	Gov of China	-	-	1	1	-	-
38.	Gov of India	1	2	-	-	-	-
39.	Gov of Japan	1	1	-	-	-	-
40.	Gov of LaO	-	-	1	1	-	-
41.	Gov of Myanmar	-	-	3	3	-	-
42.	Gov of Newzeland	1	1	-	-	-	-
43.	Gov of Singapore	-	-	1	5	-	-
44.	Gov of Taiwan	-	-	1	1	-	-
45.	Gov of Thai	-	-	1	1	-	-
	Total	14	22	79	135	5	27

Ph.D Candidates of DOF at abroad

Qualified staffs of DOF have been studying in abroad for their capacity and after that whose will be performed in relative program.

No.	Name/Position	University	Duration	Graduation	Study Field
1.	Daw Htet Moe Win	PKNU International University	2013March to 2017 March	Ph. D Candidates Fisheries Science	Health Evaluation on Oyster
2.	U Myat Thiha Saw	University of Tas-mania (Austria)	14-1-15 To 31-12-17	B.Sc Marine Environment	Sustainable Economic Development (Including Agriculture and Food Security)
3.	Daw Khine Htet Htet Win	National Taiwan Ocean University	1-9-2014 to 31-7-2016	M. Sc Candidates	International Master's Program in Aquaculture Technology and Management
4.	U Htin Lin Aung	National Taiwan Ocean University	1-9-2014 to 31-7-2016	M. Sc Candidates	International Master's Program in Aquaculture Technology and Management

Department of Fisheries Cooperation with International Organizations

Within the Fiscal year, DOF has cooperated with FAO, JICA, BOBLME, WCS, ACIAR (World Fish Center) and SEAFDEC to implement the following Projects;

1. "**Sustainable small scale Fisheries and Aquaculture Livelihood in Coastal Mangrove Ecosystem (GCP/MYA /010/ITA)"project**: It is implementing by FAO with the support of Italy Government. The project has been Starting from June, 2010 to December , 2015 at 20 villages of Bogale township in Ayeyarwady Region (US$ 1.75 Million) with the objective of strengthening the capacity of participating communities and supporting institutions in the target areas of the Ayeyarwady Delta to jointly plan and co-manage the implementation of sustainable and mangrove friendly small-scale aquaculture and fisheries. (Project Manager : U Maung Maung Lwin , Deputy Director)
2. **"Small-scale aquaculture Extension for Promotion of Livelihood of Rural Community in CDZ Project" (SAEP II)** supported by JICA in Central Dry Zone from March , 2014 to March , 2019 , is focusing on small scale aquaculture in central dry area including Mandalay, Sagaing and Magway Regions . The project was formulated followed by the previous project of SAEP. The SAEP II in CDZ is expected to contribute to rural development and poverty alleviation through sound extension of small-scale aquaculture which provides alternative livelihood for farmers in Central Dry Zone.
   (Project Manager: U Saw Lah Paw , Deputy Director)
3. **Bay of Bengal Large Marine Ecosystem Program (BOBLME) Project (2010 -2015)** is funded principally by the Global Environmental Facility (GEF), Norway, the Swedish Internal Development Agency, FAO, participating Governments and the National Oceanic and Atmosphere Administration (NOAA). Myanmar is one of the participating countries together with Maldives, India, Sri Lanka, Bangladesh, Thailand, Indonesia and Malaysia. The project with the development objective is to support the development of a Strategic Action Programme (SAP) whose implementation will lead to enhanced food security and reduced poverty for coastal communities in the BOB region, consistent and linked with a sustained resource base of good ecosystem quality. (Project Manager : Dr. Yin Yin Moe , Deputy Director)
4. **Ayeyarwaddy Dolphin Research and Protected Area Management Plan,** supported by WCS, from 2007 to 2017, along the Ayeyarwady River in Mandalay and Saging Regions is to protect and conserve the Ayeyarwady Dolphin. (Project Manager : Daw Thida Moe , Fishery Officer)
5. **Improving research and development of Myanmar's inland and coastal fisheries" Project** (US$ 2140, 799) is funded by ACIAR and commissioned by Worldfish Center, from 3 December 2012 to 30 November 2016, in Ayeyarwady Delta and Central Dry Zone. The objectives are to characterise the fisheries and aquaculture sectors in AD & CDZ, to identify, test and then demonstrate new approaches to increase productivity,

efficiency, sustainability and equity in fisheries, to strengthen the capacity for Government, private sector and NGOs to carry out research & development in fisheries sector. (Project Manager :U Nyunt Win ,Deputy Director)

6.**Capacity Building to Improve Market Access for Fish and Fisheries Products TCP/MYA/3401(D) Project** (US$ 0.298 Million) Supported by FAO from March 2012- June 2015 to improve the Capacity of stakeholders to implement hygienic practices throughout the value chain improved , to improve the Capacity of fish inspection laboratories to deliver services required for fish Inspection and certification improved and to regulate Fish inspection system of Myanmar harmonized with international requirements.(Project Manager : U Tin Wai , Deputy Director)

7.**Project for Development of Inland Fish Farming Technology : (**US$ 4.41 Million)funded by KOICA and to be implemented at Thayetkone Fisheries Station in Mandalay from 2014 to 2016.The objectives are

-To contribute to developing inland fish farming technology by introducing high quality inland fish farming operation technology in Myanmar

-To enhance the capacity of human resources in the field of inland fish farming by sharing Korea's experience and skills

-To strengthen the friendly bilateral relations and cooperation between the two countries in the inland fish farming area

-To contribute the economic and social development in Myanmar through the successful implementation of the Project

8.**Collaborative program to support the conservation of marine and freshwater biodiversity in Myanmar**: Fauna & Flora International is collaborating with DOF (December 2014 to December 2019) to support the efforts of DoF in Conserving endangered freshwater species and ecosystems, and environmental services in Kachin and Tanintharyi Regions.And also conserving marine species and ecosystems and environmental services in Tanintharyi and Ayeywaddy Regions and Rakhine State.

Planning ,Statistics and Rural Development Section

Fisheries statistics are not only a key component of a fisheries information system required for policy, planning, monitoring and management of fisheries but also a vital tool for knowing about the current and past status of fisheries and its trends on the development of the sector.

In major data collection fisheries statistics in Myanmar are three main sources of statistics, such as censuses, surveys and registration and licensing. The Directorate of Livestock ,Fisheries and Rural Development under the Ministry of Livestock, Fisheries and Rural Development is conducting the data collection, compilation, analysis and dissemination for fisheries and Livestock sector. The data collection in fisheries is implemented by the Department of Fisheries (DoF).

The objectives of fishery data collection

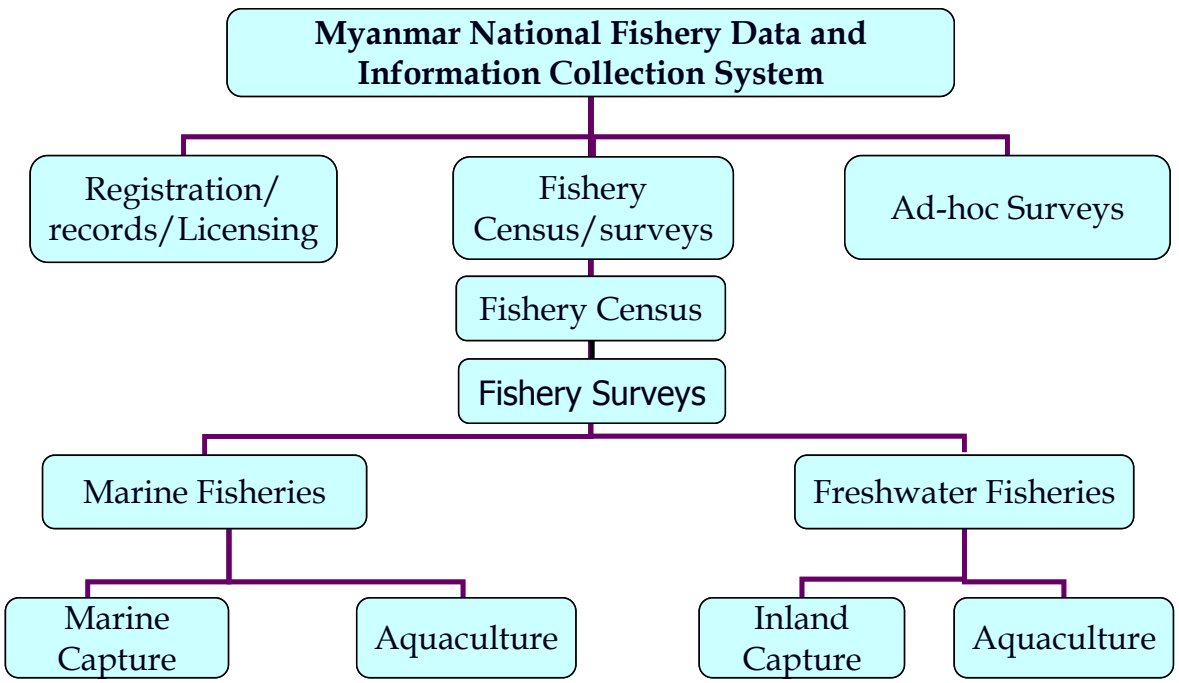
(1) To fulfill the requirements of information for the users in relation to fishery sector;

(2) To access and focus fisheries resources potential and productivity;

(3) Prediction and planning to meet the sustainable fisheries;

(4) Making policy and decision on fishery sector;

(5) Formulating and developing essential processes for long-term monitoring and management.



PART TWO
FISHERY STATISTICS

Table.1. FISHERY PRODUCTION

(2005-2006) - (2014-2015)

Thousand Metric Ton

No.	Year	Total	Aquaculture	Leasable Fisheries	Open Fisheries	Marine Fisheries
1	2005-2006	2581.78	574.99	152.69	478.43	1375.67
2	2006-2007	2859.86	616.35	170.10	548.09	1525.32
3	2007-2008	3193.92	687.67	191.05	625.44	1689.76
4	2008-2009	3542.19	775.25	209.72	689.71	1867.51
5	2009-2010	3921.97	858.76	237.46	764.97	2060.78
6	2010-2011	4163.46	830.48	250.04	913.12	2169.82
7	2011-2012	4478.21	898.96	282.64	963.82	2332.79
8	2012-2013	4716.22	929.38	290.00	1012.97	2483.87
9	2013-2014	5047.53	964.26	304.44	1076.59	2702.24
10	2014-2015(Prov:)	5316.95	999.63	315.36	1147.76	2854.20

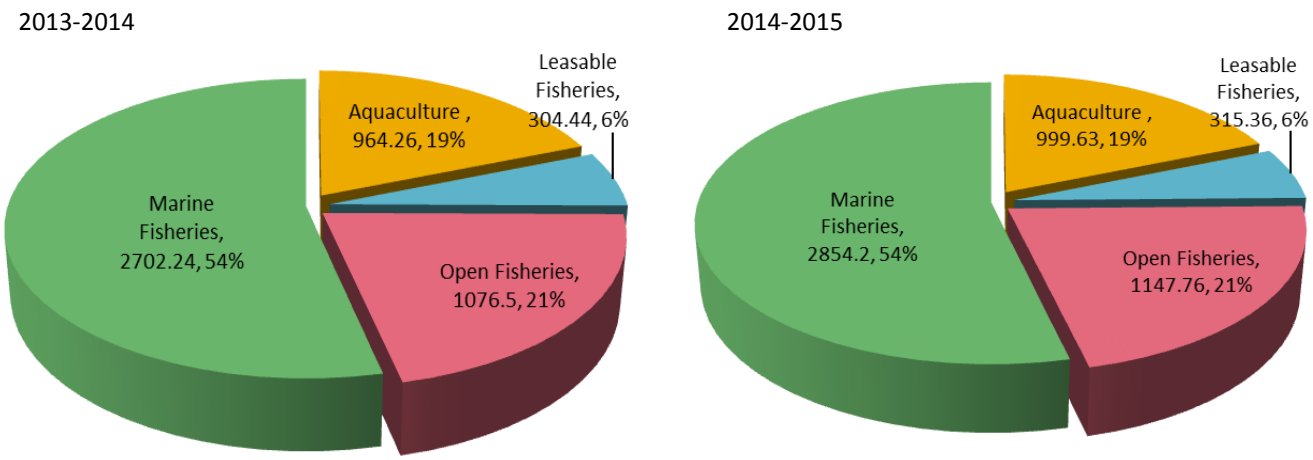


Figure1: Fishery Production (2013-14) & (2014-15)

Table.2. NUMBER OF FISHERS AND FISH FARMARS

Unit: Number

No.	Working domain	Working status	2009-10	2010-11	2011-12	2012-13	2013-14
1.	Aquaculture	Full Time	122974	123088	124751	125978	126219
		Part Time	88541	88739	89694	90306	90481
		Status Unspecified	-	-	-	-	-
		Occasional	-	-	-	-	-
2.	Inland Water Fishing	Full Time	486125	486300	486700	487000	488000
		Part Time	298000	299500	300500	300000	301000
		Status Unspecified	780000	785800	794000	796000	796500
		Occasional	-	-	-	-	-
3.	Marine Coastal Fishing	Full Time	219430	220000	223000	230000	230550
		Part Time	250000	251000	254000	251000	252000
		Status Unspecified	-	-	-	-	-
		Occasional	915000	916000	921000	916000	917000
		Full Time	**828529**	**829388**	**834451**	**842978**	**844769**
		Part Time	**636541**	**639239**	**644194**	**641306**	**643481**
		Status Unspecified	**780000**	**785800**	**794000**	**796000**	**765000**
		Occasional	**915000**	**916000**	**921000**	**916000**	**917000**
		Total	**3160070**	**3170427**	**3193645**	**3196284**	**3201750**

Table.3. TOTAL AQUACULTURE PONDS AND PRODUCTION

No.	Year	Area of Aquaculture Ponds (Acre)	Production of Aquaculture Ponds (Thousand Metric Ton)
1.	2005-2006	405855	574.99
2.	2006-2007	436825	616.35
3.	2007-2008	441098	687.67
4.	2008-2009	440585	775.25
5.	2009-2010	442702	858.76
6.	2010-2011	443695	830.48
7.	2011-2012	448469	898.96
8.	2012-2013	449692	929.36
9.	2013-2014	450323	964.26
10.	2014-2015(Prov:)	455513	999.63

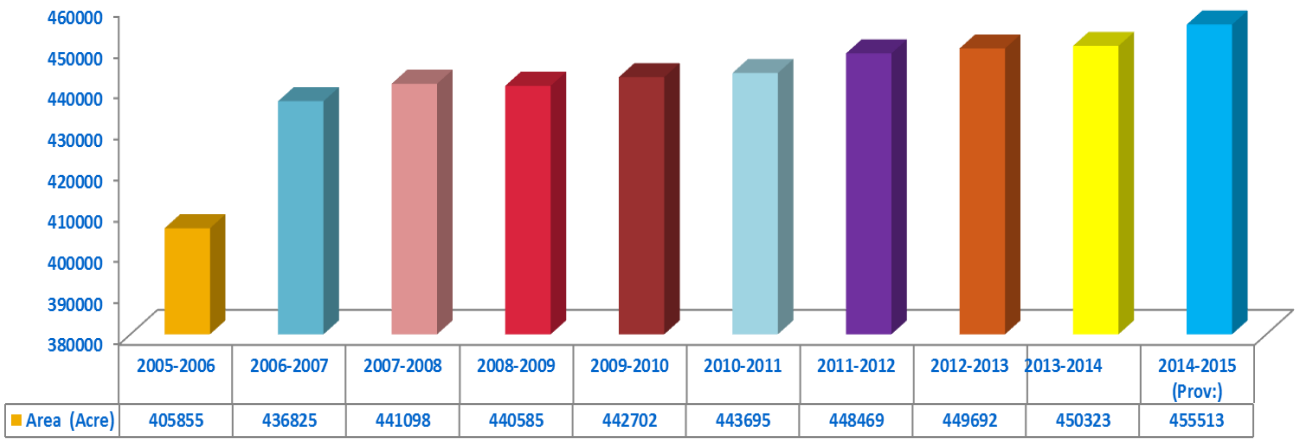


Figure2: Area of Aquaculture Pond (2005-2006 to 2014-2015)

Table. 4.TOTAL AREA OF AQUACULTURE PONDS

Unit - Acre

No.	Year	Area		
		Fish Pond	Shrimp Pond	Total
1.	2005-2006	197150	208705	405855
2.	2006-2007	212234	224591	436825
3.	2007-2008	215373	225725	441098
4.	2008-2009	215930	224655	440585
5.	2009-2010	217835	224867	442702
6.	2010-2011	218746	224949	443695
7.	2011-2012	220171	228297	448468
8.	2012-2013	221395	228297	449692
9.	2013-2014	222027	228296	450323
10.	2014-2015(Prov:)	226474	229039	455513

Table.5.1. AQUACULTURE POND BY STATES AND REGIONS

Unit-Acre

No.	States/ Regions	2005-2006			2006-2007			2007-2008		
		Fish Pond	Shrimp Pond	Total	Fish Pond	Shrimp Pond	Total	Fish Pond	Shrimp Pond	Total
1.	Kachin	868	-	868	1154	-	1154	1222	-	1222
2.	Kayah	332	-	332	360	-	360	400	-	400
3.	Kayin	326	80	406	396	80	476	396	80	476
4.	Chin	86	-	86	100	-	100	101	-	101
5.	Sagaing	4490	-	4490	4435	-	4435	4569	-	4569
6.	Taninthayi	342	777	1119	351	791	1142	329	791	1120
7.	Bago	24192	12	24204	25570	12	25582	26354	12	26366
8.	Magway	421	-	421	417	-	417	419	-	419
9.	Mandalay	6334	-	6334	6224	-	6224	6205	-	6205
10.	Mon	819	873	1692	842	1125	1967	848	1125	1973
11.	Rakhine	-	155533	155533	-	155533	155533	-	155533	155533
12.	Yangon	58586	10136	68722	58527	10195	68722	59870	11329	71199
13.	Shan	2986	-	2986	2305	-	2305	3107	-	3107
14.	Ayeyarwady	97368	41294	138662	111553	56855	168408	111553	56855	168408
	Total	**197150**	**208705**	**405855**	**212234**	**224591**	**436825**	**215373**	**225725**	**441098**

Table.5.2.AQUACULTURE POND BY STATES AND REGIONS

Unit-Acre

No.	States/ Regions	2008-2009			2009-2010			2010-2011		
		Fish Pond	Shrimp Pond	Total	Fish Pond	Shrimp Pond	Total	Fish Pond	Shrimp Pond	Total
1.	Kachin	1408	-	1408	1492	-	1492	1938	-	1938
2.	Kayah	510	-	510	400	-	480	638	-	638
3.	Kayin	399	80	479	629	80	629	400	80	480
4.	Chin	101	-	101	101	-	101	108	-	108
5.	Sagaing	4569	-	4569	4794	-	4794	5159	-	5159
6.	Taninthayi	341	821	1162	351	821	1172	351	821	1172
7.	Bago	26276	12	26288	25888	12	25900	25748	12	25760
8.	Magway	419	-	419	426	-	426	430	-	430
9.	Mandalay	6411	-	6411	6783	-	6783	6898	-	6898
10.	Mon	884	1125	2009	894	1125	2019	920	1125	2045
11.	Rakhine	-	155533	155533	-	155533	155533	-	155533	155533
12.	Yangon	59835	10229	70064	59870	10229	70099	59870	10229	70099
13.	Shan	3268	-	3268	3298	-	3298	3377	-	3377
14.	Ayeyarwady	111509	56855	168364	112909	57067	169976	112909	57149	170058
15.	Nay Pyi Taw	-	-	-	-	-	-	-	-	-
	Total	**215930**	**224655**	**440585**	**217835**	**224867**	**442702**	**218746**	**224949**	**443695**

Table.5.3. AQUACULTURE POND BY STATES AND REGIONS

Unit-Acre

No.	States/ Regions	2011-2012			2012-2013			2013-2014			2014-2015		
		Fish Pond	Shrimp Pond	Total	Fish Pond	Shrimp Pond	Total	Fish Pond	Shrimp Pond	Total	Fish Pond	Shrimp Pond	Total
1.	Kachin	1910	-	1910	1990	-	1990	2168	-	2168	2311		2311
2.	Kayah	673	-	673	748	-	748	760	-	760	760		760
3.	Kayin	400	80	480	464	80	544	464	80	544	582	80	662
4.	Chin	107	-	107	296	-	296	296	-	296	296		296
5.	Sagaing	5465	-	5465	5809	-	5809	6023	-	6023	6374		6374
6.	Taninthayi	922	4141	5063	922	4141	5063	923	4140	5063	1065	4140	5204
7.	Bago	26003	40	26043	26009	40	26049	26014	40	26054	27158	40	27198
8.	Magway	425	-	425	425	-	425	425	-	425	425		425
9.	Mandalay	7154	-	7154	7416	-	7416	7624	-	7624	7609		7609
10.	Mon	969	1125	2094	969	1125	2094	975	1125	2100	979	1125	2104
11.	Rakhine	-	155533	155533	20	155533	155553	20	155533	155553	20	155533	155553
12.	Yangon	59864	10229	70093	59864	10229	70093	59864	10229	70093	59854	10229	70083
13.	Shan	3387	-	3387	3408	-	3408	3408	-	3408	3408		3408
14.	Ayeyarwady	112892	57149	170041	112892	57149	170041	112892	57149	170041	115462	57892	173354
15.	Nay Pyi Taw	-	-	-	162	-	162	171	-	171	171	-	171
	Total	**220171**	**228297**	**448468**	**221395**	**228297**	**449692**	**222027**	**228296**	**450323**	**226474**	**229039**	**455513**

Table. 6. THE PRODUCTION OF LEASABLE FISHERIES AND OPEN FISHERIES

No.	Year	Total amount of Leasable Fisheries (Number)	Production of Leasable Fisheries (MT-000)	Production of Open Fisheries (MT-000)	Total Production of Inland Fisheries (MT-000)
1	2005-2006	3452	152.69	478.43	631.12
2	2006-2007	3463	170.10	548.09	718.19
3	2007-2008	3460	191.05	625.44	816.49
4	2008-2009	3453	209.72	689.71	899.43
5	2009-2010	3451	237.46	764.97	1002.43
6	2010-2011	3458	250.04	913.12	1163.16
7	2011-2012	3415	282.64	963.82	1246.46
8	2012-2013	3409	290.00	1012.97	1302.97
9	2013-2014	3290	304.44	1076.59	1381.03
10	2014-2015(Prov:)	3304	315.36	1147.76	1463.12

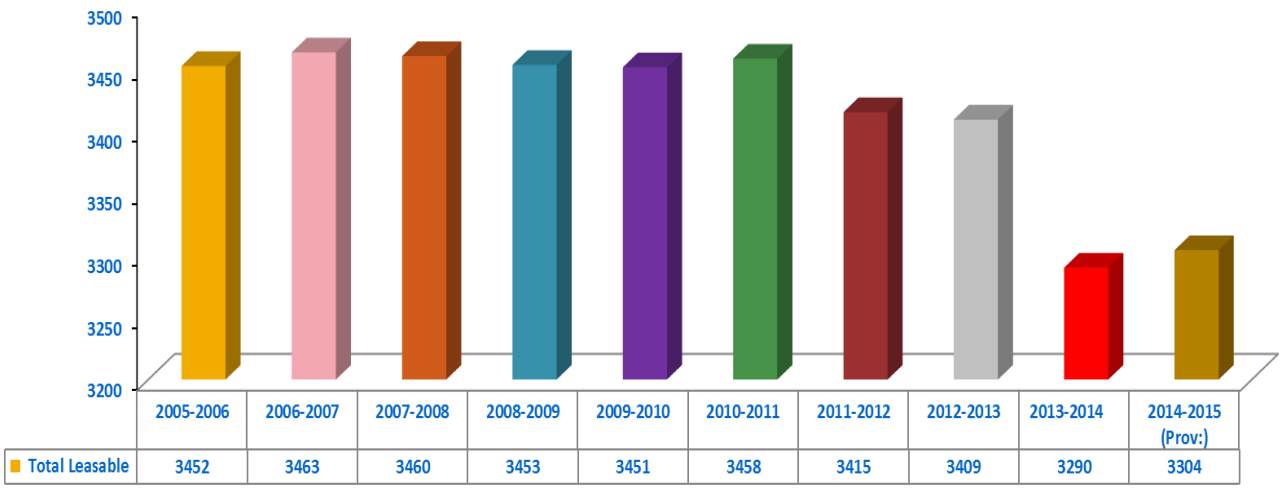


Figure 3: Number of Leasable Fisheries in Myanmar (2005-2006 to 2014-2015)

Table.7. FISHING VESSELS

Unit - Number

No.	Year	Small Fishing Boat		Off-shore Vessels		Total
		Powered Boat	Non-Powered Boat	National	Foreign	
1	2005-2006	14099	16361	2022	254	32736
2	2006-2007	14284	16284	1871	206	32645
3	2007-2008	14289	15219	1863	248	31619
4	2008-2009	14025	14645	1758	356	30784
5	2009-2010	13788	17054	1814	391	33047
6	2010-2011	13823	15548	2196	396	31963
7	2011-2012	12288	15463	2598	245	30594
8	2012-2013	12157	12757	2724	139	27777
9	2013-2014	12490	13732	2736	153	29111
10	2014-2015(Prov:)	12240	13391	2718	52	28401

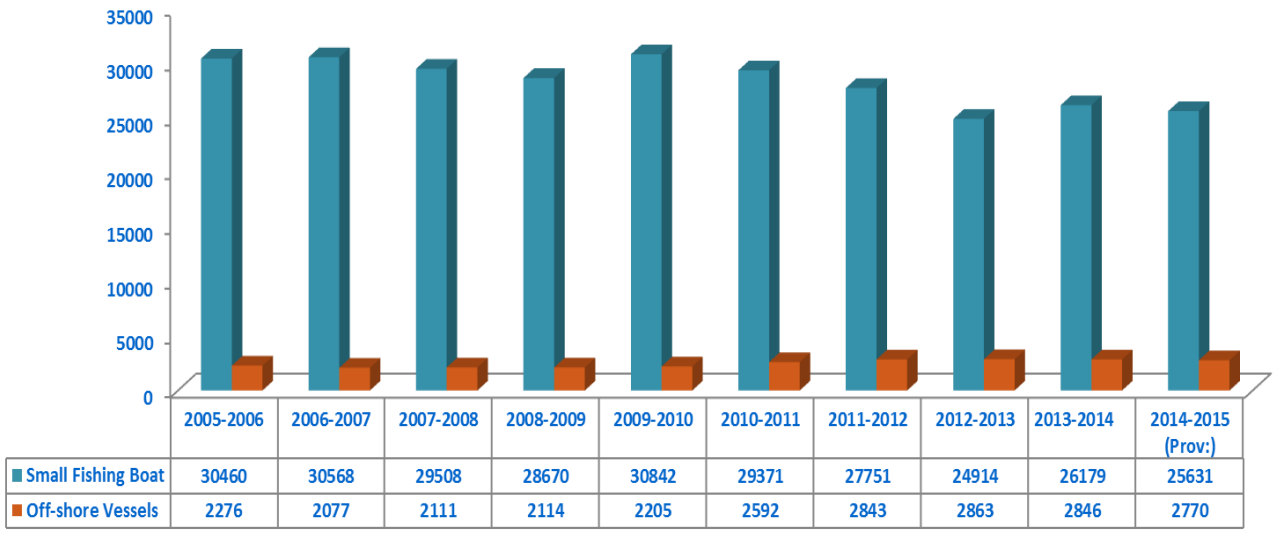


Figure4: Number of Fishing Boats and Off –Shore Vessels

Table. 8.1. TYPE OF FISHING GEAR IN STATES AND REGIONS

Unit-Number

No.	Year	States and Regions	Trawl	Purse Seine	Drift net	Long line	Stick-held falling net	Trap	Total
1.	2005-2006	Head office	452	69	367	17	-	15	920
		Rakhine	9	-	-	-	-	3	12
		Taninthayi	337	37	7	23	29	30	463
		Ayeyarwady	-	-	421	-	-	-	421
		Mon	-	-	206	-	-	-	206
		Yangon	-	-	-	-	-	-	-
Total			**798**	**106**	**1001**	**40**	**29**	**48**	**2022**
2.	2006-2007	Head office	391	68	137	-	1	81	678
		Rakhine	2	-	-	-	-	6	8
		Taninthayi	334	54	-	2	22	75	487
		Ayeyarwady	-	-	526	-	-	-	526
		Mon	-	-	172	-	-	-	172
		Yangon		-	-	-	-	-	-
Total			**727**	**132**	**835**	**2**	**23**	**162**	**1871**
3.	2007-2008	Head office	389	81	145	-	-	46	661
		Rakhine	5	-	-	-	-	4	9
		Taninthayi	376	71	1	1	19	101	569
		Ayeyarwady	-	-	464	-	-	-	464
		Mon	-	-	160	-	-	-	160
		Yangon	-	-	-	-	-	-	-
Total			**770**	**152**	**770**	**1**	**19**	**151**	**1863**
4.	2008-2009	Head office	387	72	142	-	-	39	640
		Rakhine	-	-	-	-	-	-	-
		Taninthayi	416	87	2	2	21	62	590
		Ayeyarwady	-	-	373	-	-	-	373
		Mon	-	-	155	-	-	-	155
		Yangon	-	-	-	-	-	-	-
Total			**803**	**159**	**672**	**2**	**21**	**101**	**1758**
5	2009-2010	Head office	413	63	150	3	-	41	670
		Rakhine	-	-	-	-	-	-	-
		Taninthayi	480	100	2	-	35	66	683
		Ayeyarwady	2	-	327	-	-	5	334
		Mon	-	-	127	-	-	-	127
		Yangon	-	-	-	-	-	-	-
Total			**895**	**163**	**606**	**3**	**35**	**112**	**1814**

Table.8.2. TYPE OF FISHING GEAR IN STATES AND REGIONS

Unit-Number

No.	Year	States and Regions	Trawl	Purse Seine	Drift net	Long line	Stick-held falling net	Trap	Total
6	2010-2011	Head office	487	80	174	6	-	31	778
		Rakhine	5	-	-	-	-	-	5
		Taninthayi	512	88	-	-	29	66	697
		Ayeyarwady	-	-	567	1	-	4	572
		Mon	-	-	144	-	-	-	144
		Yangon	-	-	-	-	-	-	-
Total			**1004**	**170**	**885**	**7**	**29**	**101**	**2196**
7	2011-2012	Head office	549	86	167	6	-	29	837
		Rakhine	9	-	-	-	-	1	10
		Taninthayi	542	187	-	15	302	60	1106
		Ayeyarwady	-	-	503	2	-	3	508
		Mon	-	-	137	-	-	-	137
		Yangon	-	-	-	-	-	-	-
Total			**1100**	**273**	**809**	**23**	**302**	**93**	**2598**
8	2012-2013	Head office	552	74	182	3	-	25	836
		Rakhine	7	3	-	-	-	1	11
		Taninthayi	564	201	-	32	356	64	1217
		Ayeyarwady	1	-	499	2	-	1	503
		Mon	-	-	148	-	-	-	148
		Yangon	1	-	7	1	-	-	9
Total			**1125**	**278**	**836**	**38**	**356**	**91**	**2724**
9.	2013-2014	Head office	23	5	5	-	-	2	35
		Rakhine	50	3	-	-	-	1	54
		Taninthayi	565	217	8	27	347	115	1279
		Ayeyarwady	-	-	411	1	-	1	413
		Mon	-	-	166	-	-	-	166
		Yangon	506	62	198	3	-	20	789
Total			**1144**	**287**	**788**	**31**	**347**	**139**	**2736**
10	2014-2015	Head office	583	64	187	1	-	28	863
	(Prov:)	Rakhine	2	3	-	-	-	3	8
		Taninthayi	577	216	-	22	323	105	1243
		Ayeyarwady	-	-	395	-	-	-	395
		Mon	-	-	209	-	-	-	209
		Yangon	-	-	-	-	-	-	-
Total			**1162**	**283**	**791**	**23**	**323**	**136**	**2718**

Table.9.FISHERY EXPORTS

Quantity - Metric Ton

Value - US $/Euro/Kyats in Million

No.	Year		Fish		Prawns		Others		Total	
			Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
		US $	125107.81	131.79	18941.05	89.05	45842.42	50.55	189891.28	271.39
1	2005-2006	Euro	2207.68	1.48	2047.82	8.94	269.68	0.48	4525.18	10.90
		Kyats	45740.21	46888.31	2358.77	5436.21	28554.81	22656.69	76653.79	74981.21
2	2006-2007	US $	235858.25	240.20	25369.89	120.89	82198.47	107.07	343426.61	468.16
3	2007-2008	US $	245473.15	315.46	21061.30	109.74	85117.60	135.82	351652.05	561.02
4	2008-2009	US $	234060.74	273.27	18382.10	88.85	72267.70	121.11	324710.54	483.23
5	2009-2010	US $	277823.74	309.857	17439.31	56.329	79829.384	130.404	375092.43	496.59
6	2010-2011	US $	273043.74	342.441	19142.91	68.661	81706.06	144.413	373892.71	555.515
7	2011-2012	US$	283688.76	396.276	17995.03	86.187	85297.53	171.387	386981.32	653.85
8	2012-2013	US$	266464.97	378.053	17267.93	89.285	93112.786	185.502	376845.689	652.840
9.	2013-2014	US$	237142.31	286.932	16508.97	61.981	91616.08	187.361	345267.36	536.274
10.	2014-2015	US$	225974.93	258.610	17527.33	56.889	94788.33	166.753	338290.59	482.252

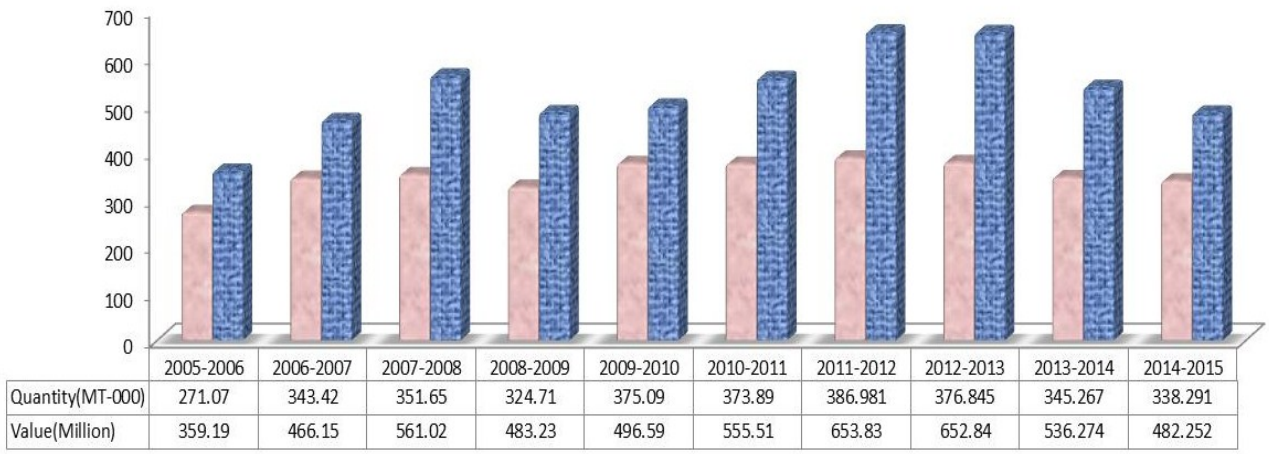


Figure 5: Fish and Fishery Product Exported in Myanmar (2005-2006 to 2014-2015)

Table.10. TOP TEN SPECIES OF EXPORTED FISH AND FISHERIES PRODUCT OF MYANMAR (2014-2015)

No.	Species (Common Name)		MT(Ordinary)	US$(Million)
1.	Rohu		64016.755	60.335
2.	Live Mud Crab		16471.428	48.907
3.	Live Eel		7496.766	26.103
4.	Pink		10322.550	22.951
5.	Tiger		4203.400	20.252
6.	Hilsa		6106.970	15.507
7.	Ribbon Fish		9265.445	14.972
8.	Soft Shell Crab		2835.486	14.708
9.	Fish Meal		21158.450	12.804
10.	White		2553.990	11.508

Table.11.IMPORT BY FISHERY PRODUCT TRADING COUNTRIES (2014-2015)

Quantity - Metric Ton
Value - US$ in million

No.	COUNTRY	FISH		PRAWN		OTHER		TOTAL	
		QTY	VALUE	QTY	VALUE	QTY	VALUE	QTY	VALUE
1	Singapore	10822.426	14.914	646.707	1.377	9984.566	6.668	21453.699	22.959
2	Kuwait	23399.728	21.850	1.250	0.003	27.428	0.082	23428.406	21.935
3	Saudi	20403.262	21.747	24.175	0.060	261.945	0.546	23689.382	22.353
4	Malaysia	2103.657	2.818	1513.294	5.941	13152.516	22.641	16769.467	31.400
5	Japan	59.111	0.113	4772.277	15.562	1918.786	3.171	6750.174	18.846
6	Bangladesh	3539.534	3.756	653.652	3.216	3409.350	2.041	7602.536	9.013
7	Pakistan	455.000	0.461	-	-	-	-	455.000	0.461
8	Cameron	22.000	0.034	-	-	-	-	22.000	0.034
9	Thailand	110023.584	107.384	1656.550	7.417	15857.395	12.949	127537.529	127.750
10	China	24492.283	46.070	5751.995	15.963	45488.622	107.652	75732.900	169.685
11	UAE	13247.968	13.454	522.060	0.972	68.653	0.162	13838.681	14.588
12	UK	5529.541	9.702	30.235	0.115	94.226	0.372	5654.002	10.189
13	Hongkong	32.257	0.129	653.301	2.129	211.471	1.898	897.029	4.156
14	Qatar	3110.079	3.295	23.949	0.034	53.362	0.124	3187.390	3.453
15	Canada	493.442	0.760	2.352	0.005	35.738	0.133	531.532	0.898
16	Greece	85.759	0.119	-	-	-	-	85.759	0.119
17	Jordan	128.807	0.170	-	-	-	-	128.807	0.170
18	Taiwan	-	-	21.600	0.033	34.860	0.156	56.460	0.189
19	Lebanon	20.475	0.020			1.300	0.004	21.775	0.024
20	Germany	31.930	0.039	-	-	-	-	31.930	0.039
21	Turkey	247.500	0.194	-	-	-	-	247.500	0.194
22	Suden	23.000	0.025	-	-	-	-	23.000	0.025
23	Cyprus	-	-	5.524	0.032			5.524	0.032
24	Belgium	-	-	17.920	0.038			17.920	0.038
25	Ireland	33.882	0.054	-	-	-	-	33.882	0.054
26	South Africa	264.760	0.335	9.062	0.015	10.878	0.022	284.700	0.372
27	Korea	250.963	0.400	49.743	0.252	227.213	0.527	527.919	1.179
28	Bahrain	1608.202	1.751	2.726	0.006	11.368	0.028	1622.296	1.785
29	Italy	1061.621	1.412	3.811	0.009	-		1065.432	1.421
30	Australia	492.774	1.280	24.224	0.087	529.296	2.172	1046.294	3.539
31	USA	1886.701	3.056	500.338	1.959	987.025	3.936	3374.064	8.951
32	Oman	1221.933	1.281	0.750	0.001	0.250	0.001	1222.933	1.283
33	Sweden	121.037	0.146	22.315	0.141	-	-	143.352	0.287
34	India	693.314	1.753	-	-	80.000	0.076	773.314	1.829
35	Netherland	55.496	0.071	51.230	0.083	-	-	106.726	0.154
36	France	-	-	56.240	0.146	49.788	0.216	106.028	0.362
37	Indonesia	-	-	128.140	0.198	197.500	0.065	325.640	0.263
38	Norway	8.400	0.013	0.015	0.000	-	-	8.415	0.013
39	Vietnan	4.500	0.004	381.893	1.095	2094.796	1.111	2481.189	2.210
	Total	**225974.926**	**258.610**	**17527.328**	**56.889**	**94788.332**	**166.753**	**338290.586**	**482.252**

Table.12.1.TOP TEN COUNTRIES IMPORTED FISHERY PRODUCTS FROM MYANMAR (2005-2006 TO 2006-2007)

Quantity - Metric Ton
Value - US $ in Million

No.	2005-2006			
	Countries		Quantity	Value
1	China	US$	82158.98	86.251
		EURO	332.59	0.438
		KYAT	19185.37	19.078
2	Thailand	US$	4437.69	5.406
		EURO	234.25	0.386
		KYAT	57369.89	55.878
3	Japan	US$	9804.12	40.682
		EURO	875.85	4.542
		KYAT	-	-
4	U A E	US$	17759.09	20.655
		EURO	79.44	0.088
		KYAT	-	-
5	Malaysia	US$	10940.42	20.296
		EURO	187.71	0.211
		KYAT	-	-
6	Saudi	US$	15183.41	17.004
		EURO	-	-
		KYAT	-	-
7	Singapore	US$	7759.26	16.232
		EURO	509.23	0.868
		KYAT	-	-
8	Hongkong (PRC)	US$	5398.98	14.729
		EURO	1576.56	1.747
		KYAT	-	-
9	Bangladesh	US$	18118.62	14.554
		EURO	-	-
		KYAT	-	-
10	U.K	US$	5551.74	8.376
		EURO	-	-
		KYAT	-	-

No.	2006-2007		
	Countries	Quantity	Value
1	China	90197.08	130.662
2	Thailand	121764.99	109.880
3	Japan	12211.50	50.440
4	Singapore	18362.08	30.434
5	Bangladesh	23669.32	22.360
6	Malaysia	10288.51	21.103
7	Saudi	18030.71	20.129
8	UAE	13993.72	17.528
9	Kuwait	14981.31	14.427
10	Hongkong (PRC)	4365.30	13.967

Table.12.2.TOP TEN COUNTRIES IMPORTED FISHERY PRODUCTS FROM MYANMAR (2007-2008 TO 2008-2009)

Quantity - Metric Ton
Value - US $ in Million

No.	2007-2008			No.	2008-2009		
	Countries	Quantity	Value		Countries	Quantity	Value
1	China	84980.51	148.724	1	Singapore	56753.61	119.044
2	Malaysia	80835.93	86.960	2	China	58921.26	106.153
3	Singapore	32095.00	70.363	3	Thailand	89489.51	76.978
4	Thailand	48820.83	55.985	4	Malaysia	23004.36	41.260
5	Japan	10523.96	42.085	5	Kuwait	34423.65	31.844
6	Saudi	18798.08	35.146	6	Japan	6514.06	23.400
7	Kuwait	27895.32	30.026	7	Saudi	17702.42	21.344
8	Bangladesh	20229.72	27.003	8	Bangladesh	14694.98	18.686
9	UAE	9467.70	13.902	9	UAE	10610.28	13.782
10	HongKong	3141.41	12.664	10	United Kingdom	5192.64	10.674

Table.12.3.TOP TEN COUNTRIES IMPORTED FISHERY PRODUCTS FROM MYANMAR (2009-2010 TO 2010-2011)

Quantity - Metric Ton
Value - US $ in Million

No.	2009-2010			No.	2010-2011		
	Countries	Quantity	Value		Countries	Quantity	Value
1	China	55991.33	105.076	1	China	77914.27	179.704
2	Thailand	122817.59	99.229	2	Thailand	134634.31	110.595
3	Singapore	46424.56	96.257	3	Singapore	25413.33	59.378
4	Kuwait	58747.92	52.964	4	Kuwait	50643.82	56.683
5	Malaysia	21351.10	36.127	5	Malaysia	20669.93	39.419
6	Saudi	20426.63	23.272	6	Saudi	19474.26	24.673
7	Japan	6215.54	16.908	7	Japan	7197.15	21.882
8	UAE	13517.21	16.784	8	UAE	12292.49	17.789
9	Bangladesh	13993.34	16.257	9	Bangladesh	11372.95	14.166
10	United Kingdom	6285.68	12.427	10	United Kindom	6488.43	13.085

Table.12.4.TOP TEN COUNTRIES IMPORTED FISHERY PRODUCTS FROM MYANMAR (2011-2012 TO 2012-2013)

Quantity - Metric Ton
Value - US $ in Million

No.	2011-2012			No.	2012-2013		
	Countries	Quantity	Value		Countries	Quantity	Value
1	China	92775.645	258.759	1	China	90780.734	244.249
2	Thailand	136278.599	124.457	2	Thailand	137631.665	133.165
3	Malaysia	23325.904	53.623	3	Singapore	26584.477	49.748
4	Kuwait	45496.48	51.155	4	Kuwait	34515.926	49.153
5	Singapore	15881.889	34.522	5	Malaysia	19288.339	45.678
6	Japan	6839.415	30.361	6	Japan	6895.203	34.971
7	Saudi	20771.696	28.610	7	Saudi	21738.835	31.806
8	Bangladesh	17296.858	23.124	8	UAE	15142.596	19.424
9	UAE	16045.36	21.320	9	United Kingdom	6341.289	14.561
10	United Kingdom	6275.849	13.845	10	Bangladesh	9529.391	11.978

Tale.12.5.TOP TEN COUNTRIES IMPORTED FISHERY PRODUCTS FROM MYANMAR (2013-2014 TO 2014-2015)

Quantity - Metric Ton

Value - US $ in Million

No.	2013-2014		
	Countries	Quantity	Value
1	China	82665.926	199.290
2	Thailand	126645.544	128.980
3	Malaysia	16459.55	35.285
4	Kuwait	26196.712	27.051
5	Singapore	20086.003	25.220
6	Saudi	19672.380	24.370
7	Japan	6490.001	23.511
8	UAE	16008.274	18.271
9	U.K	7123.743	13.839
10	Bangladesh	8190.575	8.500

No.	2014-2015		
	Countries	Quantity	Value
1	China	75732.90	169.685
2	Thailand	127537.529	127.75
3	Malaysia	16769.467	31.400
4	Singapore	21453.699	22.959
5	Saudi	20689.382	22.353
6	Kuwait	23428.406	21.935
7	Japan	6750.174	18.846
8	UAE	13838.681	14.588
9	U.K	5654.002	10.189
10	Bangladesh	7602.536	9.013

Table.13. FISH SUPPLY IN YANGON

Unit - Thousand Metric Ton

No.	Year	Production		
		Fresh Water	Marine	Total
1	2005-2006	84.05	112.19	196.24
2	2006-2007	102.90	103.95	206.85
3	2007-2008	91.28	143.83	235.11
4	2008-2009	78.83	103.69	182.52
5	2009-2010	91.39	132.47	223.86
6	2010-2011	93.07	138.44	231.51
7	2011-2012	97.67	152.94	250.61
8	2012-2013	94.68	167.01	261.69
9	2013-2014	135.04	166.42	301.46
10	2014-2015	142.45	152.95	295.40

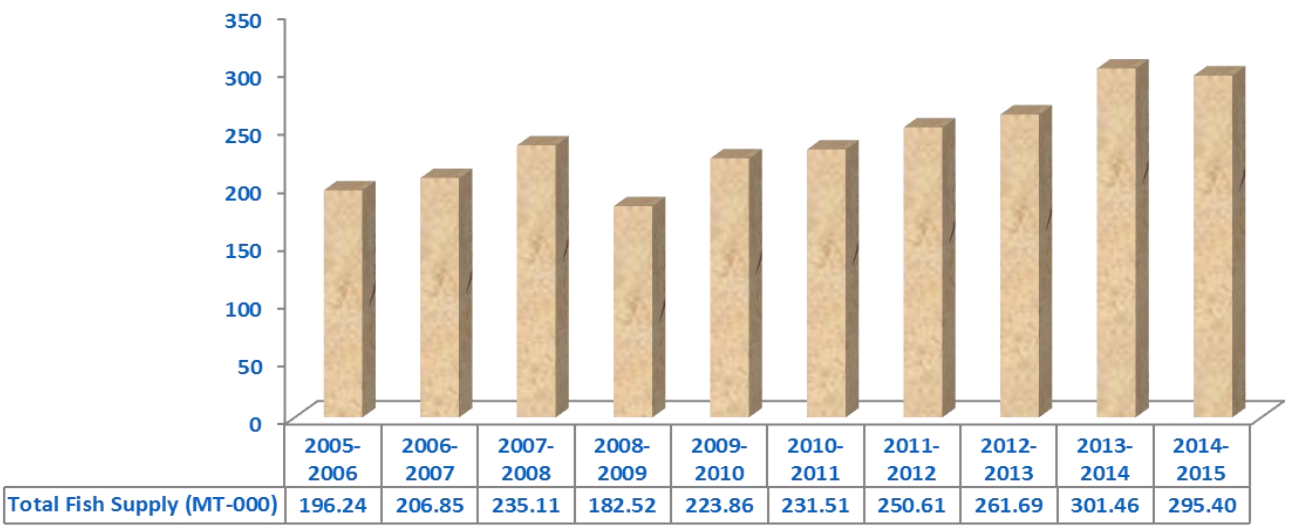


Figure 6: Fish Supply in Yangon (2005-2006 to 2014-2015)

Table.14. PER CAPITA FISH SUPPLY BY YEAR

No.	Year	Population (Million)	Production (Metric Ton)	Non-food use (Metric Ton)	Export (Metric Ton)	Per Capita Fish Supply
1.	2014-2015 (Prov:)	51	5316954	1860934	338290	61

*In the above figure, the quantities of fish of non-food use is estimated in which it is included for using amount of animal feeds, processing waste from raw material to finished products, and for fish meal etc.,.

Table. 15.1. SEED PRODUCTION BY FISH HATCHERIES UNDER DOF

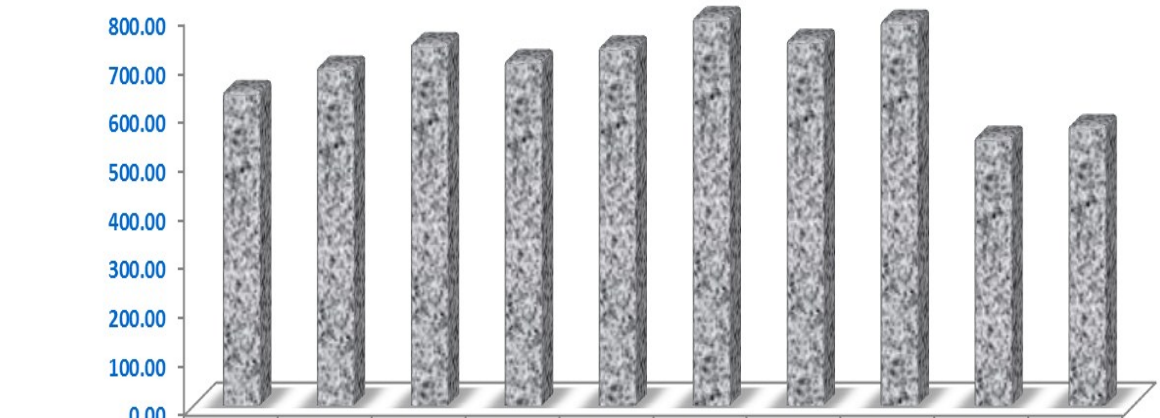
Unit: Million

No.	Myanmar Name	Common Name	Scientific Name	2005-06	2006-07	2007-08	2008-09	2009-10
1.	Nga Myit Chin	Rohu	*Labeo rohita*	478.640	529.739	541.700	517.800	527.260
2.	Shwe Wa Nga Gyin	Common Carp	*Cyprinus carpio*	70.485	52.628	68.500	47.500	77.370
3.	Myetsar Nga Gyin	Grass Carp	*Ctenopharyngodon idella*	6.181	8.034	6.300	5.900	4.170
4.	Nga Khaung Pwa	Catla	*Catla catla*	4.676	4.638	6.100	5.000	5.190
5.	Yaung Sone Nga Gyin	Colour Carp	*Carrasius spp:*	-	-	-	12.200	-
6.	Tilapia	Tilapia	*Tilapia spp:*	13.972	13.727	13.400	3.200	20.06
7.	Ngwe Yaung Nga Gyin	Silver Carp	*Hypophthalmichtys molitrix*	2.813	3.134	3.000	2.300	3.380
8.	Khaung Gyi Nga Gyin	Big Head	*Aristichthys nobilis*	2.413	2.639	2.100	-	2.190
9.	Nga Khu	Cat Fish	*Clarias batrachus*	0.601	1.803	-	10.000	-
10.	Nga Dan	Stripped Catfish	*Pangasius sutchi*	11.267	17.052	11.700	1.800	4.660
11.	Nga Phan Ma	Rohtee	*Rohtee alfrediana*	0.200	0.350	-	10.800	-
12.	Nga Gyin Phyu	Mrigal	*Cirrhina mrigala*	4.825	3.817	3.400	66.500	2.850
13.	Pa Cu (Ye Cho Nga Mote)	Fresh water pomfret	*Pirictus spp:*	6.054	15.302	9.300	-	3.290
14.	Nga Khone Ma	Tarpian	*Barbodes gonionotus*	43.401	37.095	75.200	-	86.230
15.	Nga Net Pyar	Black carp	*Labeo calabasu*	-	-	-	-	0.050
16.	Nga Thyine	Minor Carp	*Leabo Fdolizkae*	-	-	-	-	0.060
17.	Be Lar	Snakeskin gourami	*Trichogester pectoralis*	-	-	-	-	-
18.	Vietnam Nga Dan	Stripped Catfish	*Pangasius bacourti*	-	-	-	-	-
19.	Nga Kye	Sconpion catfish	*Heteropneustcs fossilis*	-	-	-	-	-
20.	Nga Phane	Nga Phane	*Cyprinus intha*	-	-	-	-	-
21.	Sultan	Sultan Fish	*Teptobanbus hoevenii*	-	-	-	-	-
	Total			**645.528**	**689.958**	**743.380**	**708.312**	**736.760**

Table.15.2. SEED PRODUCTION BY FISH HATCHERIES UNDER DOF

Unit - Million

No.	Myanmar Name	Common Name	Scientific Name	2010-11	2011-12	2012-13	2013-14	2014-15
1.	Nga Myit Chin	Rohu	*Labeo rohita*	460.179	535.409	549.20	384.86	397.57
2.	Shwe Wa Nga Gyin	Common Carp	*Cyprinus carpio*	83.882	49.223	45.58	41.91	38.75
3.	Myetsar Nga Gyin	Grass Carp	*Ctenopharyngodon idella*	8.397	3.833	13.40	5.60	5.48
4.	Nga Khaung Pwa	Catla	*Catla catla*	11.733	6.547	9.64	7.06	6.98
5.	Tilapia	Tilapia	*Tilapia spp:*	18.363	17.883	13.06	13.57	11.49
6.	Ngwe Yaung Nga Gyin	Silver Carp	*Hypophthalmichtys molitrix*	5.629	6.894	5.25	5.53	4.72
7.	Khaung Gyi Nga Gyin	Big Head	*Aristichthys nobilis*	3.8	3.539	2.30	2.79	2.2
8.	Nga Khu	Cat Fish	*Clarias batrachus*	-	0.05	-	-	-
9.	Nga Dan	Stripped Catfish	*Pangasius sutchi*	9.384	5.660	8.98	7.11	5.68
10.	Nga Gyin Phyu	Mrigal	*Cirrhina mrigala*	6.652	4.554	6.09	2.85	2.27
11.	Pa Cu (Ye Cho Nga Mote)	Fresh water pomfret	*Pirictus spp:*	6.733	3.690	7.63	5.57	7.33
12.	Nga Khone Ma	Tarpian	*Barbodes goniono-tus*	181.439	112.761	127.86	73.48	89.54
13.	Nga Phan Ma	Rohtee	*Rohtee alfrediana*					0.10
14.	Nga Thyine	Minor Carp	*Leabo Fdolizkae*	-	-	-	-	-
15.	Be Lar	Snakeskin gourami	*Trichogester pectoralis*	0.06	0.02	-	-	-
16.	Vietnam Nga Dan	Stripped Catfish	*Pangasius bacourti*	0.002	-	-	-	-
17.	Nga Kye	Sconpion catfish	*Heteropneustcs fossilis*	-	0.30	0.25	0.10	0.05
18.	Nga Phane	Nga Phane	*Cyprinus intha*	-	0.003	0.22	0.35	1.65
19.	Sultan	Sultan Fish	*Leptobanbus hoevenii*	-	0.004	-	0.06	-
20.	Nga Ohn Tone	Nandina	*Labeo nandina*	-	-	0.06	-	-
21.	Nga Dane	Kuria Labeo	*Labeo gonius*	-	-	0.10	-	-
22.	Taung Paw Nga Thar Lauk	Streaked prochilod	*Prochilodus lineatus*	-	-	-	0.57	1.60
	Total			**796.253**	**750.370**	**789.62**	**551.41**	**575.41**



	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15 (Prov:)
Production(Million)	645.53	695.26	743.38	708.31	736.76	796.25	750.37	789.62	551.41	575.41

Figure 7: Seed Production by Fish Hatcheries Under DOF (2005-06 to 2014-15)

Table.16. FISH HATCHERIES UNDER DOF (2008-2009)

Unit - Million

No.	Fish Hatcheries	Location	Production
	Yangon Region		**216.947**
1	Hlaw Kar	Mingalardone Township, Yangon.	90.556
2	Twante	Twante Township	87.150
3	Laydaukkan	Dagon (east) Township	39.241
	Bago Region		**61.970**
4	Bago (Kali)	Bago Township	36.216
5	Thanappin	Thanappin Township	13.512
6	Oakpho	Oakpho Township	12.242
	Mandalay Region		**297.513**
7	Pathein Gyi	Pathein Gyi Township	82.283
8	Myit Thar	Myit Thar Township	80.974
9	Natyekan	A-ma-ya-pu-ya Township	59.028
10	Pyinmanar	Pyin-ma-nar Township	57.031
11	Matayar	Ma-ta-yar Township	18.197
	Ayeyarwady Region		**66.842**
12	Pathein	Pathein Township	6.199
13	Talotehla	Ma-u-bin Township	16.843
14	Hinthada	Hin-tha-da Township	5.955
15	Pantanaw	Pan-ta-naw Township	21.882
16	Aung-hate	Ma-u-bin Township	15.963
	Magway Region		**5.155**
17	Taung dwin gyi	Taung dwin gyi Township	3.500
18	Pwint Phyu	Pwint Phyu Township	1.655
	Kachin State		**7.061**
19	Waing-maw	Waing-maw Township	3.874
20	Bamaw	Bamaw Township	3.187
	Sagaing Region		**13.933**
21	Shwe Bo	Shwe Bo Township	3.869
22	Yay Oo	Yay Oo Township	7.761
23	Kalay	Kalay Township	2.303
	Mon State		**6.661**
24	Thahtone	Thahtone Township	6.661
	Shan State		**6.244**
25	Nyaung Shwe	Nyaung Shwe Township	6.244
	Kayin State		**0.633**
26	Pha aan	Pha-aan Township	0.633

Table.17. FISH HATCHERIES UNDER DOF (2009-2010)

Unit - Million

No.	Fish Hatcheries	Location	Production
	Yangon Region		**163.100**
1	Hlaw Kar	Mingalardone Township, Yangon.	91.400
2	Twante	Twante Township	31.400
3	Laydaukkan	Dagon(east) Township	40.300
	Bago Region		**91.200**
4	Bago (Kali)	Bago Township	43.100
5	Thanappin	Thanappin Township	27.100
6	Oakpho	Oakpho Township	21.000
	Mandalay Region		**313.600**
7	Pathein Gyi	Pathein Gyi Township	84.300
8	Myit Thar	Myit Thar Township	79.600
9	Natyekan	A-ma-ya-pu-ya Township	59.500
10	Pyinmnar	Pyin-ma-nar Township	69.200
11	Matayar	Ma-ta-yar Township	21.000
	Ayeyarwady Region		**115.300**
12	Pathein	Pathein Township	26.300
13	Talotehla	Ma-u-bin Township	26.900
14	Hinthada	Hin-tha-da Township	10.100
15	Pantanaw	Pan-ta-naw Township	30.000
16	Aung-hate	Ma-u-bin Township	22.000
	Magway Region		**7.300**
17	Taungdwingyi	Magway Township	4.900
18	Pwint Phyu	Pwint Phyu Township	2.400
	Kachin State		**9.700**
19	Waing maw	Waing-maw Township	6.200
20	Bamaw	Bamaw Township	3.500
	Sagaing Region		**29.100**
21	Shwe Bo	Shwe Bo Township	7.600
22	Yay Oo	Yay Oo Township	17.700
23	Kalay	Kalay Township	3.800
	Mon State		**3.500**
24	Thahtone	Thahtone Township	3.500
	Shan State		**3.200**
25	Nyaung Shwe	Nyaung Shwe Township	3.200
	Kayin State		**0.700**
26	Pha aan	Pha-aan Township	0.700

Table.18.FISH HATCHERIES UNDER DOF
(2010-2011)

Unit - Million

No.	Fish Hatcheries	Location	Production
	Yangon Region		**186.800**
1	Hlaw Kar	Mingalardone Township, Yangon.	101.800
2	Twante	Twante Township	44.500
3	Laydaukkan	Dagon(east) Township	40.500
	Bago Region		**68.200**
4	Bago (Kali)	Bago Township	40.100
5	Thanappin	Thanappin Township	15.400
6	Oakpho	Oakpho Township	12.700
	Mandalay Region		**373.500**
7	Pathein Gyi	Pathein Gyi Township	97.900
8	Myit Thar	Myit Thar Township	111.000
9	Natyekan	A-ma-ya-pu-ya Township	58.900
10	Pyinmanar	Pyin-ma-nar Township	78.700
11	Matayar	Ma-ta-yar Township	27.000
	Ayeyarwady Region		**101.800**
12	Pathein	Pathein Township	20.900
13	Talotehla	Ma-u-bin Township	10.800
14	Hinthada	Hin-tha-da Township	9.600
15	Pantanaw	Pan-ta-naw Township	35.300
16	Aung hate	Ma-u-bin Township	25.200
	Magway Region		**8.600**
17	Taungdwingyi	Magway Township	5.500
18	Pwint Phyu	Pwint Phyu Township	3.100
	Kachin State		**19.000**
19	Waing-maw	Waing-maw Township	9.200
20	Bamaw	Bamaw Township	9.800
	Sagaing Region		**26.600**
21	Shwe Bo	Shwe Bo Township	10.600
22	Yay Oo	Yay Oo Township	10.300
23	Kalay	Kalay Township	5.700
	Mon State		**5.100**
24	Thahtone	Thahtone Township	5.100
	Shan State		**3.100**
25	Nyaung Shwe	Nyaung Shwe Township	3.100
	Kayin State		**3.500**
26	Pha aan	Pha-aan Township	3.500

Table.19.FISH HATCHERIES UNDER DOF
(2011-2012)

Unit - Million

No.	Fish Hatcheries	Location	Production
	Yangon Region		**180.268**
1	Hlaw Kar	Mingalardone Township, Yangon.	81.844
2	Twante	Twante Township	47.555
3	Laydaukkan	Dagon(east) Township	50.869
	Bago Region		**69.665**
4	Bago (Kali)	Bago Township	39.964
5	Thanappin	Thanappin Township	15.156
6	Oakpho	Oakpho Township	14.545
	Mandalay Region		**314.509**
7	Pathein Gyi	Pathein Gyi Township	82.420
8	Myit Thar	Myit Thar Township	77.225
9	Natyekan	A-ma-ya-pu-ya Township	37.111
10	Pyinmanar	Pyin-ma-nar Township	100.070
11	Matayar	Ma-ta-yar Township	17.683
	Ayeyarwady Region		**128.953**
12	Pathein	Pathein Township	25.896
13	Talotehla	Ma-u-bin Township	15.252
14	Hinthada	Hin-tha-da Township	13.010
15	Pantanaw	Pan-ta-naw Township	47.436
16	Aung hate	Ma-u-bin Township	27.359
	Magway Region		**7.532**
17	Taungdwingyi	Magway Township	4.582
18	Pwint Phyu	Pwint Phyu Township	2.950
	Kachin State		**13.630**
19	Waing-maw	Waing-maw Township	8.089
20	Bamaw	Bamaw Township	5.521
21	PutaO	PutaO Township	0.020
	Sagaing Region		**23.987**
22	Shwe Bo	Shwe Bo Township	5.353
23	Yay Oo	Yay Oo Township	11.814
24	Kalay	Kalay Township	6.820
	Mon State		**6.713**
25	Thahtone	Thahtone Township	**6.713**
	Shan State		**2.914**
26	Nyaung Shwe	Nyaung Shwe Township	2.914
	Kayin State		**2.917**
27	Pha aan	Pha-aan Township	2.197

Table. 20. FISH HATCHERIES UNDER DOF
(2012-2013)

Unit - Million

No.	Fish Hatcheries	Location	Production
	Yangon Region		**177.925**
1	Hlaw Kar	Mingalardone Township, Yangon.	80.445
2	Twante	Twante Township	37.638
3	Laydaukkan	Dagon(east)Township	59.842
	Bago Region		**74.165**
4	Bago (Kali)	Bago Township	40.343
5	Thanappin	Thanappin Township	17.098
6	Oakpho	Oakpho Township	16.724
	Mandalay Region		**290.901**
7	Pathein Gyi	Pathein Gyi Township	87.519
8	Myit Thar	Myit Thar Township	99.661
9	Natyekan	A-ma-ya-pu-ya Township	78.626
10	Matayar	Ma-ta-yar Township	25.095
	Nay Pyi Taw		**56.296**
11	Pyinmanar	Pyin-ma-nar Township	56.296
	Ayeyarwady Region		**127.65**
12	Pathein	Pathein Township	20.702
13	Talotehla	Ma-u-bin Township	15.981
14	Hinthada	Hin-tha-da Township	11.918
15	Pantanaw	Pan-ta-naw Township	54.355
16	Aung hate	Ma-u-bin Township	24.694
	Magway Region		**10.657**
17	Taungdwingyi	Magway Township	5.279
18	Pwint Phyu	Pwint Phyu Township	5.378
	Kachin State		**16.736**
19	Waing-maw	Waing-maw Township	9.866
20	Bamaw	Bamaw Township	6.87
	Sagaing Region		**21.375**
21	Shwe Bo	Shwe Bo Township	6.452
22	Yay Oo	Yay Oo Township	10.293
23	Htee chaint	Htee chaint Township	4.63
	Mon State		**7.101**
24	Thahtone	Thahtone Township	7.101
	Shan State		**4.818**
25	Nyaung Shwe	Nyaung Shwe Township	4.818
	Kayin State		**1.999**
26	Pha aan	Pha aan Township	**1.999**

Table.21. FISH HATCHERIES UNDER DOF
(2013-2014)

Unit - Million

No.	Fish Hatcheries	Location	Production
	Yangon Region		**141.58**
1	Hlaw Kar	Mingalardone Township, Yangon.	59.33
2	Twante	Twante Township	44.55
3	Laydaukkan	Dagon(east)Township	37.70
	Bago Region		**73.11**
4	Bago (Kali)	Bago Township	35.61
5	Thanappin	Thanappin Township	15.16
6	Oakpho	Oakpho Township	22.34
	Mandalay Region		**186.45**
7	Pathein Gyi	Pathein Gyi Township	79.27
8	Myit Thar	Myit Thar Township	58.21
9	Natyekan	A-ma-ya-pu-ya Township	36.55
10	Matayar	Ma-ta-yar Township	12.42
	Nay Pyi Taw Council		**19.72**
11	Pyinmanar	Pyin-ma-nar Township	19.72
	Ayeyarwady Region		**79.28**
12	Pathein	Pathein Township	19.10
13	Talotehla	Ma-u-bin Township	13.40
14	Hinthada	Hin-tha-da Township	13.05
15	Pantanaw	Pan-ta-naw Township	19.37
16	Aung hate	Ma-u-bin Township	14.36
	Magway Region		**9.40**
17	Taungdwingyi	Magway Township	3.67
18	Pwint Phyu	Pwint Phyu Township	5.73
	Kachin State		**11.45**
19	Waing-maw	Waing-maw Township	5.74
20	Bamaw	Bamaw Township	5.71
	Sagaing Region		**21.69**
21	Shwe Bo	Shwe Bo Township	6.59
22	Yay Oo	Yay Oo Township	9.53
23	Htee chaint	Htee chaint Township	5.57
	Mon State		**3.14**
24	Thahtone	Thahtone Township	3.14
	Shan State		**3.13**
25	Nyaung Shwe	Nyaung Shwe Township	3.13
	Kayin State		**2.45**
26	Pha aan	Pha aan Township	**2.45**

Table.22. FISH HATCHERIES UNDER DOF
(2014-2015)

Unit - Million

No.	Fish Hatcheries	Location	Production
	Yangon Region		**152.83**
1	Hlaw Kar	Mingalardone Township	40.65
2	Twante	Twante Township	73.74
3	Laydaukkan	Dagon(east) Township	38.44
	Bago Region		**68.64**
4	Bago (Kali)	Bago Township	35.23
5	Thanappin	Thanappin Township	17.77
6	Oakpho	Oakpho Township	15.64
	Mandalay Region		**157.18**
7	Pathein Gyi	Pathein Gyi Township	73.93
8	Myit Thar	Myit Thar Township	59.27
9	Natyekan	A-ma-ya-pu-ya Township	11.49
10	Matayar	Ma-ta-yar Township	12.49
	Nay Pyi Taw		**56.16**
11	Pyinmanar	Pyin-ma-nar Township	56.16
	Ayeyarwady Region		**86.25**
12	Pathein	Pathein Township	19.81
13	Talotehla	Ma-u-bin Township	14.54
14	Hinthada	Hin-tha-da Township	14.94
15	Pantanaw	Pan-ta-naw Township	22.52
16	Aung hate	Ma-u-bin Township	14.44
	Magway Region		**8.41**
17	Taungdwingyi	Taungdwingyi Township	3.98
18	Pwint Phyu	Pwint Phyu Township	4.43
	Kachin State		**9.89**
19	Waing-maw	Waing-maw Township	3.89
20	Bamaw	Bamaw Township	6.00
	Sagaing Region		**24.45**
21	Shwe Bo	Shwe Bo Township	7.48
22	Yay Oo	Yay Oo Township	11.33
23	Htee chaint	Htee chaint Township	6.26
	Mon State		**3.22**
24	Thahtone	Thahtone Township	3.22
	Shan State		**4.46**
25	Nyaung Shwe	Nyaung Shwe Township	4.46
	Kayin State		**3.22**
26	Pha aan	Pha aan Township	**3.22**

Table.23. SHRIMP/PRAWN HATCHERIES UNDER DOF (2011-2012 to 2014-2015)

Unit - Million

No.	Shrimp/PrawnHatcheries Shrimp(Penaeus monodon)	2011-2012	2012-2013	2013-2014	2014-2015
1	Wa-maw (Long-lone)	1.20	1.50	0.50	0.50
2	Kyauk-phyu	0.80	1.00	1.50	2.50
3	Ye-chan-pyin	0.60	3.00	1.50	-
4	A-lae-tan-kyaw	0.20	-	-	-
5	Chaung Tha (Sein Ngwe Mya) Prawn(Macrobrachium rosenbergii)	-	2.00	-	-
6	Kyauk-tan	0.60	-	-	0.30

MAP OF THE SITUATION COLD STOREAGES & ROCESSING PLANTS IN REGIONS AND STATES OF MYANMAR

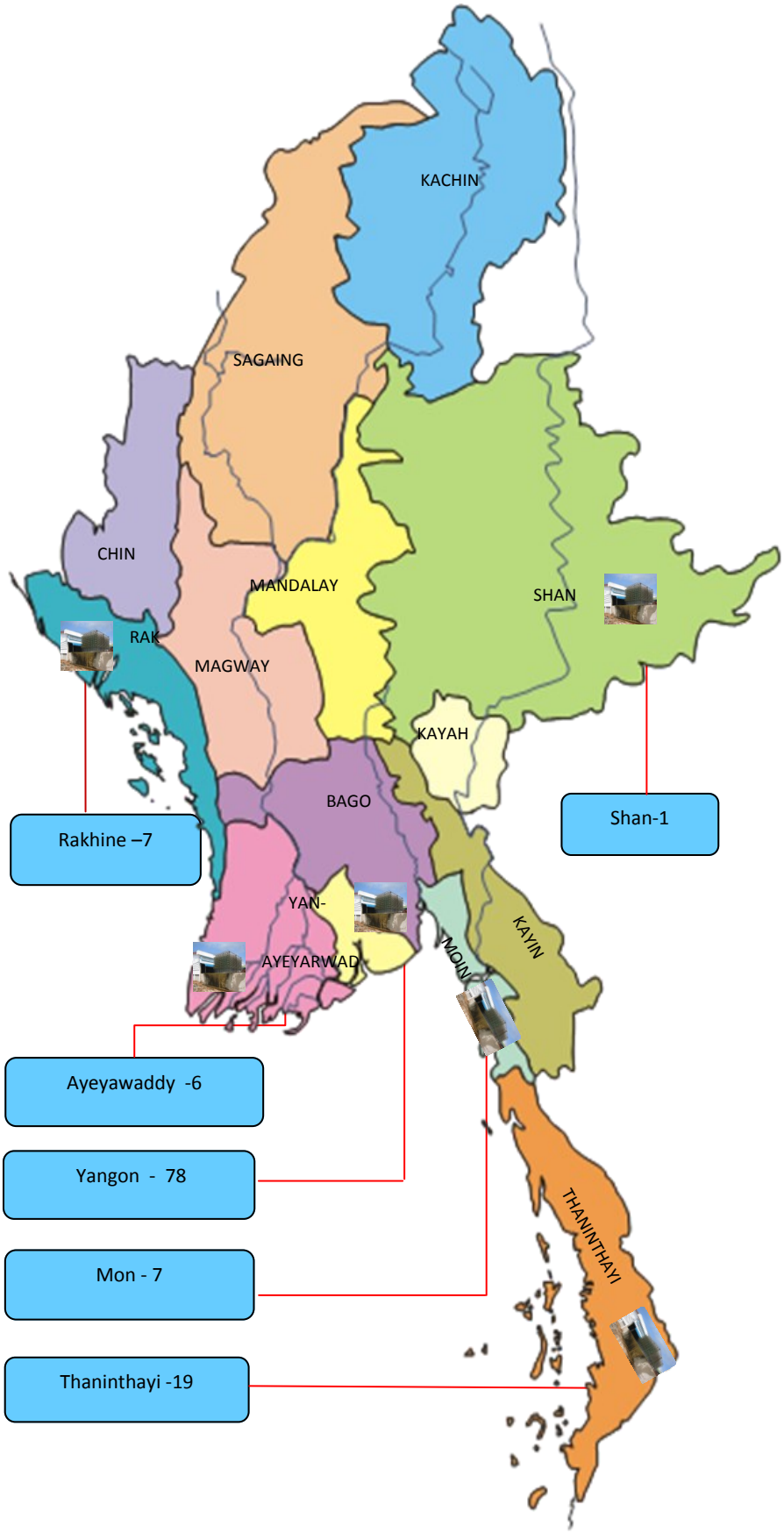


Table.24. ICE PLANTS
(BY REGION AND STATE)

NO.	REGION AND STATE	NUMBER OF PLANTS	CAPACITY OF ICE PLANT (METRIC TON PER DAY)
1	YANGON	106	2364.06
2	TANINTHAYI	48	2535.6
3	RAKHINE	39	456
4	AYEYARWADY	70	869
5	MON	29	528
6	MANDALAY	7	30
7	SHAN	2	3.20
	TOTAL	**301**	**6785.8**