WESTERN AND CENTRAL PACIFIC FISHERIES COMMISSION (WCPFC)

DEPARTMENT OF CAPTURE FISHERIES AND FISHERIES RESOURCES PROTECTION (DECAFIREP)

NATIONAL TUNA MANAGEMENT PLAN IN VIETNAM

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I. INTRODUCTION

1. Rationale for establishing the national tuna management plan in Vietnam

Oceanic tunas (Skipjack tuna, Big eye tuna and Yellow fin tuna) are found in offshore waters and long distance migration. They can travel among waters of different countries during their life span. Tuna stocks may be caught by different fleets of various countries. They are, therefore, managed effectively if they are governed under management measures within the international agreements.

Actually, the tuna stocks are managed by national or international management plans through the total allowable catch (TAC) management regime. According to the Convention on the Conservation and Management of Highly Migratory Fish Stocks 1994 of the United Nation, the tuna stocks distributed in Vietnamese waters belong to the management scope of the Western and Central Pacific Fisheries Commission (WCPFC). Vietnam has participated into this organization in 2006 as an observer and as a cooperating non-member since 2009. Being as a member of the WCPFC will benefit both sides WCPFC and Vietnam. The tuna stocks distributed in the Vietnamese economic exclusive zone (EEZ) and in the regional waters will be managed sufficiently, as well as the tuna originated from Vietnam will be treated equitably in the international markets. Therefore, WCPFC have been conducting the WPEA-OFM project since 2009 in order to enhance data collection system and provide insights into Vietnamese tuna fisheries.

Oceanic tunas are the major targets for the offshore fisheries in Vietnam. The tuna fisheries are not only the primary fisheries but also are the key factor for modernizing, industrializing and integrating into the regional fisheries and international economy. However, the tuna fisheries are not managed sufficiently. In fact, the tuna fisheries are governed aggregately in general fisheries management and development plans e.g. fisheries strategies, master plans, five-year plans and annual plans of the fisheries sector in the administrative levels e.g. national, provincial, district and communal levels. In fact, the fishing effort and tuna catches are not controlled and managed. This means that the tuna stocks are almost under the open-access regime. Meanwhile, WCPFC and other countries develop their own tuna management plan within their sovereign waters.

Furthermore, developing and implementing a tuna management plan is a precondition to become a WCPFC's member. Therefore, development of the national tuna management plan (NTMP) is necessary for Vietnam to manage tuna stocks sufficiently and sustainably in its EEZ and integrate into the regional fisheries. The NTMP provides primary principles for managing and using tuna

resources in Vietnamese EEZ sustainably, effectively and equitably, which are compatible with the Vietnamese regulations and international conventions ratified by Vietnamese government.

1.2. The legal bases

The NTMP was based on the:

- Vietnamese Fisheries law, 2003 and implementation guidance documents: Decree No. 59/2005/ND -CP regarding the conditions of trading and production of fisheries related occupations and Decree No. 14/2009/ND-CP regarding the revision and supplement of some articles of Decree 59/2005/ND-CP, Decree No. 32 / 2010/ND-CP on the management of fishery activities of foreign fishing vessels in all marine areas of Vietnam; Decree No. 33/2010/ND-CP on management of fishing activities of organizations and individuals in all marine areas of Vietnam; Decree No. 52/2010/ND-CP on the import of fishing vessels, and Decree 31/2010/ND-CP on administrative violations in fisheries sector
- The fisheries sector strategies up to 2020 and visions to 2030 was adopted by the Primary Minister at the Decision No. 1690/QD-TTg dated 16/9/2010.
- The United Nations Convention on the Law of the Sea 1982 and international conventions and agreements on management and conservation of fish stocks, as well as international agreements on trading and marketing tuna and tuna products.
- Conservation and management measures of WCPFC.

1.3. The scope of the NTMP

Objectives, principles and management measures of the NTMP are imposed on individuals and organizations conducting fisheries management; fishing, processing, storing, trading, marketing and utilizing tuna and tuna products originated from Vietnam. This NTMP will be applied in 2013-2020. Its objectives, principles and management measures will be imposed on the line fisheries for big eye tuna and yellow fin tuna in Binh Dinh, Phu Yen and Khanh Hoa provinces in 2013-2015, and for other fishing gears for skipjack, big eye tuna and yellow fin in other provinces from 2016.

Some relevant management measures will be imposed on the Vietnamese flag vessels doing fishing outside of Vietnamese EEZ and transhipment of tuna caught or imported into Vietnam.

The provincial tuna management plan may be established provided that its objectives and action plans agree and connect with the NTMP.

1.4. Review and evaluation of the NTMP

The time frame of the NTMP is developed compatibly with the time frame of the strategies and master plans of the fisheries sector. Based on the NTMP, the five-year and annual management plan will be elaborated in order to achieve the objectives of the NTMP. The objectives and management measures of the annual management plans will be evaluated and reviewed annually (in the November) to develop the coming year management plan.

Objectives, contents and management measures of the NTMP in each five-year phase will be reviewed and adjusted after 30 months of putting into practice. The whole NTMP will be evaluated and reviewed at the end of every five-year to establish the NTMP for the next five-year plan.

Measurable indicators based on the sufficiently and adequately scientific data will be designed to evaluated effectiveness and efficiencies of the NTMP. All relevant stakeholders: managers, tuna industry, fishers, tuna association, scientists, non-government representatives will get involved fully into the evaluation process.

II. Tuna fisheries profile and management in Vietnam

2.1. Tuna fisheries profile

2.1.1. Status of tuna resources

Nine species of tuna are found in Vietnamese waters. They can be classified into two groups: 1) the big tunas distributing in the offshore areas – the oceanic tuna including skipjack tuna (P. pelamis) , big eye tuna (T. obesus) and yellow fin tuna (T. albacores) and albacore tuna (T. alalunga) and the small tunas distributing in the shallower waters: long tail tuna (T. tongol), striped tuna (S. orientanis), eastern little tuna (E. affinis), frigate mackerel (A. thazard), bullet tuna (A. rochei). The oceanic tunas are mainly found in the offshore waters of the central and southeast areas. The standing biomass estimated in 2005 was around 663,000 tons and the exploitable potential catch was approx. 233,000 tons (Son, 2005). Of this, the skipjack accounts for nearly 93%. The status and dynamic trend of the tuna resources have not assessed and updated regularly and systematically for managing tuna stocks.

2.1.2. The tuna fisheries

The tuna fisheries have been developed mainly in three provinces: Binh Dinh, Phu Yen and Khanh Hoa. The tuna are caught by four major fishing gears: long line, hand line, purse seine and gill net. The tuna fleets fluctuate very much accordingly to the fishing seasons and the local fishing patterns. This creates a difficulty in controlling the fishing effort of the tuna fisheries in Vietnam. In fact, there has not been a reliable and updated number of fishing vessels catching tuna Vietnam so far. According to Department of Capture Fisheries and Resources Protection (DECAFIREP), in 2011, the total number of fishing vessels for tuna in the whole country was approx. 7,251 vessels and in the above provinces was around 2,548 as illustrated in the table 1.

Table 1. The tuna fishing fleets in Binh Binh, Phu Yen and Khanh Hoa provinces.

TUNA LONGLINE					
	Year				
Size class (HP)	**2007**	**2008**	**2009**	**2010**	**2011**
50 - 90	581	609	271	280	161
91 - 150	239	325	214	99	97
151 - 250	106	317	326	382	326
251 - 400	40	81	22	209	227
> 400	27	31	31	7	54
Total	**993**	**1363**	**864**	**977**	**714**
TUNA GILLNET					
	Year				
Size class (HP)	**2007**	**2008**	**2009**	**2010**	**2011**
50 - 90	331	693	819	709	627
91 - 150	43	145	210	245	261
151 - 250	46	77	152	160	184
251 - 400	28	255	249	222	216
> 400	1	14	23	33	24
Total	**449**	**1184**	**1453**	**1369**	**1312**
TUNA PURSE SEINE (daily purse seine)					
	Year				
Size class (HP)	**2007**	**2008**	**2009**	**2010**	**2011**
50 - 90	581	205	80	139	134
91 - 150	239	199	106	115	184
151 - 250	106	79	130	117	44
251 - 400	40	101	108	131	133
> 400	27	3	0	5	20
Total	**993**	**587**	**424**	**507**	**495**
Gross Total	**2435**	**3134**	**2741**	**2853**	**2521**

The table 1 shows a decline trend of vessel number in 2011 in comparison to the previous years. However, according the presentations at the workshop organized by WPEA-OFM in Vung Tau, 08-10 November 2012, the total number of tuna vessels in these provinces is approx. 3,375 vessels at the end of October 2012.

The tuna catch can be landed at over 60 landing sites along the coast of 28 coastal provinces. For oceanic tuna, they are unloaded mainly at ten fishing ports in Binh Dinh, Phu Yen and Khanh Hoa provinces. Therefore, the enumerator program of the catch faces with difficulties in human as well as financial resources.

As a consequence, the total landings of tuna have not enumerated adequately for the management purpose. According the presentations at the workshop organized by WPEA-OFM in Vung Tau, 08-10 November 2012, the rough estimation of total tuna catches in three provinces of Binh Dinh, Phu Yen and Khanh Hoa from January to September in 2012 is around 30,730 tons and the catches of big eye and yellow fin tunas is approx. 14,940 tons. This is less than the catch in 2011 of 69,600 tons (VTFACE-01 workshop). At the same time, according to Vietnam Association of Seafood Exporters and Producers (VASEP), the tuna production and the value of the tuna production grew stably during 2000-2011 as shown in the figure 1.

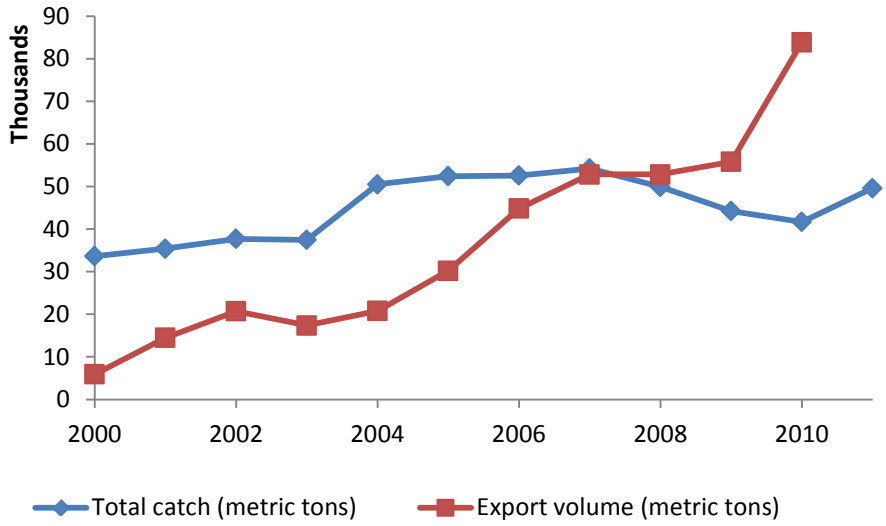

Figure 1. Tuna catch and tuna export volume in Vietnam from 2000 to 2011 (VASEP 2012; WPEA-OFM 2012)

This presents contradictory figures in the tuna catches and in total vessels as well. This demonstrates uncertainties and unreliability in fisheries data collection system in Vietnam.

2.1.3. Trading and marketing tuna and tuna products

Vietnam is third laergest tuna importers over the world in 2010. Tuna and tuna products originated from Vietnam are mainly exported to US, EU, Japan etc., a minor volume, around 10%, of tuna are consumed in the domestic market.

According to VASEP, in 2011, total tuna exports making up 6.2 percent of total export value of Vietnam seafood reached US$379.4 million, increasing up 29.4 percent comparing to 2010.

On the other hand, compared to the same period of 2010, tuna export price surged sharply in which export price to Japan posted the highest of over 100 percent and export price to Canada, Israel, the U.S., and Switzerland was up 50-80 percent. However, in import markets such as Iran, Taiwan, Germany, the export price rose slowly. The export price in EU reported the worst level among all tuna importers of Vietnam. Based on information of some Vietnam's largest tuna exporters, in 2011, tuna export value has been rising because of increasing of imported raw tuna material and fishing costs.

In 2011, Vietnam tuna was shipped to 92 markets, up from 91 markets of 2010. Tuna exports to traditional markets remained a stable growth.

Table 2. Destinations for Vietnam's export tuna products in 2011

Live, fresh, frozen, dried tuna products (HS 03 code)				**Processed tuna (HS 1604 code)**			
No.	**Markets**	**Value (US$ million)**	**Market share (%)**	**No.**	**Markets**	**Value (US$ million)**	**Market share (%)**
1	The U.S.	103.210	44.40	1	The U.S.	68.160	46.40
2	Japan	37.654	16.20	2	Germany	16.918	11.52
3	Italy	16.447	7.07	3	Thailand	13.314	9.06
4	Iran	9.720	4.18	4	Japan	6.412	4.37
5	Belgium	9.414	4.05	5	Tunisia	4.166	2.84
6	Spain	6.548	2.82	6	Lebanon	3.432	2.34
7	Canada	6.491	2.79	7	Switzerland	3.342	2.28
8	Thailand	5.635	2.42	8	Taiwan	2.521	1.72
9	Israel	5.588	2.40	9	Croatia	2.209	1.50
10	The U.K	5.169	2.22	10	Bahamas	2.207	1.50
Total 10 markets:		205.876	88.56	Total 10 markets:		122.681	83.52
Others:		26.602	11.44	Others:		24.205	16.48
Total:		**232.479**	**100.00**	**Total:**		**146.886**	**100.00**

Source: VASEP, 2012

2.2. The status of tuna fisheries management in Vietnam

2.2.1 The legal regulations

Like other fisheries, the tuna fisheries are managed by the fisheries law and aggregate fisheries regulations e.g. degrees of the central government and circulars of the Minister of Agriculture and Rural Development (MARD). The fisheries law provides a legal framework for a combination management regime based on the three pillars: technical measures, total allowable catch control and total fishing effort limitation in given fishing grounds.

- *The technical measures to protect fisheries resources and aquatic environment*

- Decree No. 59/2005/ND-CP dated 04/5/2005 05 of the Government on production conditions and trading of some marine capture and trading fisheries and Decree No. 14/2009/ND-CP regarding the revision and supplement of some articles of Decree 59/2005/ND-CP. This regulates conditions procedures for entering the capture fisheries.
- Decree No. 32/2010/ND-CP dated 30/3/20120 on the management of fishery activities of foreign fishing vessels in all marine areas of Vietnam. This provides conditions and procedures for foreign fishing vessels doing fishing in Vietnamese waters.
- Decree No. 33/2010/ND-CP dated 31/3/2010 on management of fishing activities of organizations and individuals in all marine areas of Vietnam. This provides obligations and procedures for operating fishing in sea zones in Vietnamese EEZ.
- Decree No. 52/2010/ND-CP dated 21/6/2010 on the import of fishing vessels. This provides conditions and procedures to import fishing vessels from other countries into Vietnam.
- Decree No. 31/2010/ND-CP dated 29/3/2010 on administrative violations in fisheries sector providing penalty and fines for illegal fishing practices.
- Decree No. 107/2005/ND-CP dated 17/8/2005 regarding to organization and mechanism of the fisheries inspection force.
- Circular No. 02/2006/TT-BTS of Ministry of Fisheries (now MARD) on 20/03/2006 for guiding the implementation of Decree No. 59/2005/ND and

Circular No. 62/2008/TT-BNN on 20/05/2008 of the MARD about amending and supplement of some items of Circular No. 02/2006/TT-BTS. These provides detailed technical measures: mesh size, fish size to be caught, closed seasons and areas, species prohibited to be caught etc.

These regulations are not elaborated for tuna, except the mesh size for gill net and purse seine catching tuna. However, this regulation was not relied on clearly scientific evidences.

In addition to this, the fisheries authorities have developed a national action plan for combating illegal, unreported and uncontrolled fishing in Vietnam. Furthermore, international agreements and conventions in fisheries management and fish products trade, especially conservation and management measures of WCPFC have also been ratified and introduced into Vietnamese fisheries.

- *The total allowable catch control*

The fisheries law provides a framework for introduction of the TAC-based management regime into Vietnamese fisheries. In fact, the TAC is considered as the target catch level in the planning documents and determined aggregately for all species and fisheries. This are not allocated as the catch quotas to fishing entities. As a result, each fisher or vessel can catch as much as they can. Furthermore, the landings control mechanism is not established throughout the fisheries management system. This demonstrates that the output control paradigm is not implemented in Vietnamese fisheries.

- *The fishing effort limitation*

Similarly, the fisheries law requires the number of fishing effort putting into a given fishing ground should be defined congruently with the available resources capacity. In fact, the number of fishing vessels is defined clearly in the master plans and other planning documents. However, the number of fishing vessels is developed far from the planned numbers. For instance, the total number of fishing vessels planned for 2010 was 50,000 vessels, but the real figure was over 128,000 vessels.

2.2.2. The institutional arrangements

The Fisheries Law provides the highest legal framework for all fisheries activities throughout the country. The law assigns MARD to regulate the offshore fisheries and the Provincial People's Committee (PPC) to be in charge of managing the nearshore fisheries bordered by the line 24 miles far from the shore. MARD takes a role to develop fisheries planning for the whole country and PPC develops their own fisheries planning based on the MARD's planning system. Fish stocks and fisheries are governed administratively. This means that MARD, PPC, District People's Committee and Commune People's Committee take responsible for managing fisheries at the national, provincial, district and communal levels, instead

of a fisheries management regime by species, fisheries, ecosystems or fishing areas.

The central government is in charge of making decrees to implement the law and assign MARD issuing circulars to bring the law into practice nationwide. The PPC – represented by Department of Agriculture and Rural Development (DARD) takes responsibility to implement legal regulations enacted by the central government and MARD. In addition, the PPC has rights to enact the specific regulations which harmonize with the particularly provincial condititions. These must not conflict with the MARD regulations and take only effect within their province.

The management process (data collection and analysis, making and adopting plans and policies, implementing and reviewing plans and policies) is exercised by the state management agencies. The other stakeholders may be invited to participate into the management processes as consultants.

2.2.3. Data collection system for management purpose

In spite of a fisheries decision making framework has been accepted by most stakeholders as illustrated in figure 2, but its procedures and activities have not implemented comprehensively and sufficiently. As a result, there is still a lack of sufficient and reliable data base for making fisheries management decisions.

In addition to this, MARD decided to establish the Marine Fishing Specialists Team in order to gather, analyse data and provide assessments of marine capture fisheries for management purposes at national and provincial levels. The team had worked with available data and provided some consultant reports under supports of the Danish project in 2007-2009. However, this team has been almost collapsed due to no advisory requirements sent to.

In general, the fisheries data for management purpose can be collected directly or indirectly from fishing practices or independently with fishing industry. They are normally collected through five main sources: 1) scientific surveys with research vessels, 2) onboard observer program, 3) logbook and fishing reports program, 4) enumerator program on ladings and fishing effort, and 5) socio-economic surveys at fishing communities.

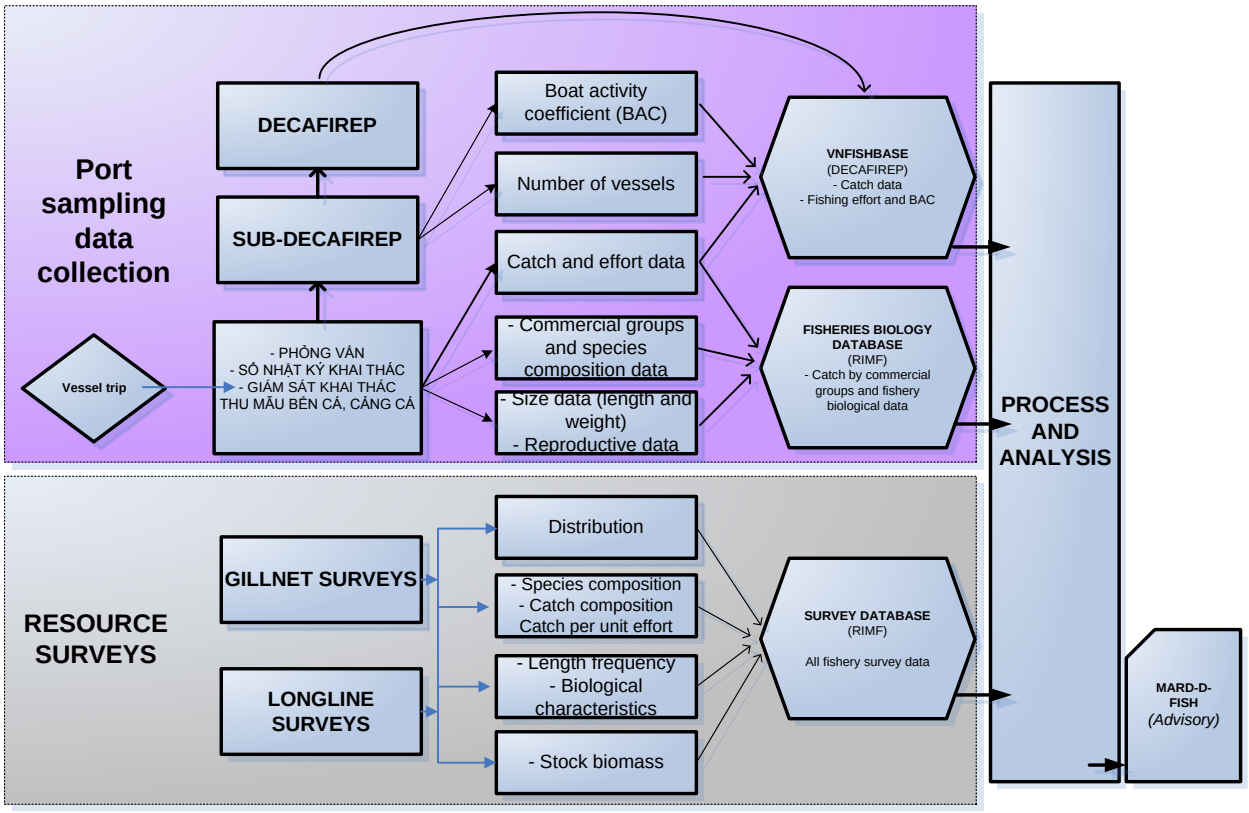

Figure 2: A framework for making fisheries management decision

- *The scientific surveys with research vessels*

Information collected by surveys allows estimating relative resource abundance index temporally and spatially. By comparison with previous studies, it will indicate the current resources status and their dynamics. The surveys should be conducted at the same time and with repeated periods in the following years using fixed sampling stations. However, the scientific surveys for tuna stocks have not conducted regularly to understand their dynamics and distribution. The commercial longline and gillnet vessels have been used to conduct stock assessments of the bigeye and the yellowfin tuna in Vietnam.

The virtual population analysis (VPA) and is used to estimate the standing biomass of tuna in Vietnam, although it has been criticized for its appropriateness for tuna stocks. However, protocols and sampling methods should also be discussed and criticized by national fisheries scientists on consulting with international/regional scientists to obtain the standard collection methods for tuna resource surveys in Vietnam. The Multifan-CL approach may be more feasible and appropriate for tuna stocks assessments in Vietnamese and regional waters.

The fisheries law regulates that the stock assessments ought to be conducted regularly for management purposes. MARD and PPC are in charge to arrange budgets for carrying out stock assessments within their mandate waters.

- *The onboard observer program*

Currently observer program have not been established in fisheries management system in Vietnam. This has been implemented in the research projects to collect data of the fishing trips as well as biological, catch, by-catch of the fishing trip. Therefore, use of these data type to cross-check with other data types is very limited. Over the past few years, observer data were only collected from tuna longline fishery. The tuna gillnet and purse seine fisheries have not been carried out so far. Similar to the logbook program, the onboard observer data have been stored and used dispersedly by research institution. This data have not been used for management purposes.

- *The logbook program*

The logbook and fishing report program is stipulated under the fisheries law and in the decree No. 33/2010/ND-CP and the circular No. 48/2010/TT-BNNPTNT. All fishing vessels have the obligation to submit their logbook or fishing report to the local fisheries authorities. However, this program has been not complied sufficiently. The coverage rate of the logbook is very limited. It was just about 16% for tuna fisheries in Binh Dinh in 2012, for instance.

Over some years, logbook program has been conducted in separate projects by research institutions in collaboration with Sub-DECAFIREP of Binh Dinh, Phu Yen and Khanh Hoa for longline and gillnet fisheries under a very small scope. Collected data are very limited especially the accuracy of the obtained data. In fact, this data are stored in various agencies, so utilization of this is limitation.

- *Landings enumerator program*

In general, this program is regularly conducted by the General Statistics Office. The sampling-based survey approach is used to estimate the total landings of the marine capture fisheries in Vietnam. The total landings are reported every six-month and yearly aggregately by all fisheries for all species and commercial groups e.g. fishes, shrimps, squids and others, not for separate species such as: tuna, mackerel, etc. Moreover, the total landings are reported by administrative territories e.g. commune, district, province and the whole country, not by fishing grounds or management waters. Meanwhile, fishing vessels can do fishing and land their catches beyond their administrative territories and waters. This may

result in errors in estimation of the total landings. This is not sufficient and suitable for making fisheries management decisions (Paul A.M van Zwieten and et al, 2002).

Besides, the total landings estimation has been carried out for specific fisheries and fishing fleets by species in separate research projects. Of these, an enumerator program was established and operated in 1997-2005 supported by Danish government. This program collected data on fishing trips of commercial fishing vessels at most landing sites of coastal provinces. Based on this, the time-series total landings by species and fleets were estimated for various management scales. However, this database has not been used properly for fisheries management purposes. This program was almost collapsed after the Danish government ending technical and financial supports. As a consequence, there have not been figures of total landings by species and fleets reported regularly in Vietnam, except data are not officially accepted from research projects.

For tuna, three provinces of Binh Dinh, Phu Yen and Khanh Hoa have reported their total landings of tuna annually. In addition to this, Research Institute for Marine Fisheries (RIMF) also proclaimed their figures of tuna landings as the research results. The total landings of tuna in Binh Dinh, Phu Yen and Khanh Hoa provinces have been also estimated by WPEA-OFM project since 2009. Besides, the port sampling data for tuna biology research has also implemented by this project since 2009 and other research projects.

- *The fishing effort estimation*

In principle, fisheries authorities are required to report regularly the number of fishing vessels under their management mandate. As a result, the fleet structure is reported regularly by the fishing licence and vessel register system. However, this data is illustrated aggregately by gear types e.g. trawling, purse seining, gillnetting, lining and others. In fact, the fleet structure fluctuates very much by seasons. Additionally, the fishing pattern of local communities is also traditionally changeable over time. This data, therefore, do not reflect the nature of pressure on the aquatic resources and environment. There is a lack of reliable data on fishing fleets updated in Vietnam, except the number of fishing vessels registered by gear types. This means that the number of fishing days at sea and number of the active fishing vessels monthly, yearly have not estimated in Vietnam.

For tuna fisheries, the number of vessels landed has been monitored at fishing ports in Binh Dinh, Phu Yen and Khanh Hoa provinces for the total landings estimation since 2009.

- *The fisheries socio-economic information*

Socio-economic data: labour, households, incomes, costs, alternative livelihoods etc. on fisheries in general and on tuna fisheries in particular are extremely important topics to reach sustainable development and management goals. Therefore, planning-makers should know the economic realities of the fishing fleets especially for offshore fishing fleets contributing very high values in term of economic contribution such as tuna fisheries. However, this data have not been taken into account properly in Vietnam. The socio-economic data were just reported unsystematically in fisheries researches. They were almost integrated into the fisheries management planning processes.

Generally, the fisheries data collection system was stipulated in the fisheries law and other legal regulations. However, these legal frameworks have not been complied sufficiently and the main reason for this failure is the lack of finance capacity. In addition, the traditional planning approach is also a big challenge for improving the data collection system in Vietnam. Actually, the fisheries data have been collected and stored dispersedly and unsystematically in various fisheries institutions: research institutes, fisheries administration, fisheries authorities etc. As a result, there has been a lack of the comprehensive knowledge base for making fisheries management and development plans in Vietnam.

Currently, a data collection program for marine fisheries was designed within the decision No.47/2006/QD-TTg. In which, a scientific survey with research vessels, onboard observer program and landings enumerator program for the whole marine capture fisheries will be implemented up to 2020. The tuna fisheries were also included in this program. In addition, the WCPFC also has provided financial and technical assistances to improve data collection system and management capacity for tuna fisheries in Vietnam, especially in three key provinces: Binh Dinh, Phu Yen, Khanh Hoa since 2009. However, maintaining these data collection system after ending projects will be a huge challenge for fisheries authorities and governmental levels.

2.3. Concluding remarks

The tuna resources are considered as the most significant and primary for the offshore fisheries in Vietnam. The tuna fisheries take a strategically important role for developing fisheries sector in particularly and for the marine economy of nation in general. The tuna fisheries provide employment, incomes, and livelihoods for fishing communities; exchange return and security at sea for the nation. However, they are governed insufficiently and ineffectively.

There is a lack of the comprehensive data collection system. The available data are not suitable for making the tuna management plan in Vietnam.

Fishing, trading and using tuna and tuna products are not managed effectively. Biological and ecological characteristics of tuna and fisheries features have not been learned sufficiently for managing them. Fishing effort and total landings of the tuna fisheries are not regulated and controlled throughout management levels.

The legal regulations for tuna fisheries are not elaborated and/or complied sufficiently. The management approach for tuna resources are not defined clearly. The marine capture fisheries are managed by administrative territories approach. This seems not to be suited for marine fisheries. The participation of stakeholders into management processes is limited.

The management plans are included into the development plans. The planning documents are established aggregately for all species and all fisheries. A tuna management plan has not been developed before. As a consequence, the tuna resources have been exploited under the open-access regime.

III. The National Tuna Management Plan

3.1. Points of views and principles

The NTMP is developed and implemented under the fisheries law and other legal frameworks of Vietnam international fisheries agreements and conventions within the following main principles:

- Conservation and management measures ought to be compatible with strategies, master plans and other planning documents of fisheries sector and exercised effectively by a monitoring, control, surveillance, enforcement, and compliance mechanism.
- The tuna resources are managed and utilized sustainably, effectively and equitably based on the best available knowledge in fisheries and resources. Ecosystem and precautionary approaches to tuna fisheries management.
- Responsible fish utilization and trade practices consistent with principles, rights and obligations under the World Trade Organization (WTO) and the General Agreement on Tariffs and Trade (GATT).
- Enhancing bilateral and multilateral cooperation with international organizations: WCPFC, ICCAT, IOTC and other countries to promote and implement the conservation and management of shared tuna resources.

Compatibility of the tuna conservation and management measures in the Vietnamese EEZ and on the high seas.

2.2. Goals and objectives of the NTMP

The overall goal of this NTMP is the tuna fisheries are managed within regional standards through application of conservation and management measures in order to develop tuna fisheries sustainably in Vietnam. In order to achieve this goal, the NTMP provides for the following specific objectives:

In 2013-2015:

- The legal regulations and institutional arrangements for the tuna and tuna fisheries are revised and supplemented compatibly with the fisheries law and with international agreements and conventions.
- The vessel monitoring system (VMS) for tuna fisheries in the Vietnamese EEZ are established and operated.
- The landings of tuna fishing vessels are enumerated and reported for the production traceability.
- The logbook and fishing report program is enforced and maintained.
- The stock assessments and biological sampling for tuna are implemented regularly.
- Fleet structure and fishing effort of tuna fisheries are monitored and updated monthly.
- Establish and operate an advisory body for managing tuna fisheries in Vietnam.

In 2016-2020:

- Ensure effective data collection and analysis that would support management decisions for the rational use and conservation of tuna fisheries
- Ensure that tuna stocks are maintained at sustainable levels by taking into account best scientific evidence available and relevant environmental and socio-economic factors.
- The eco-label certificate of the Marine Steering Council (MSC) was provided for the tuna and tuna products originated from Vietnam.

III. Contents and implementation schedules of NTMP

In order to archive the above objectives of the NTMP, the following major contents and activities should be implemented:

<u>CONTENT 1</u>: Revise legal regulations and reform institutional arrangements for managing tuna fisheries in Vietnam.

Objective: Legal and policy frameworks for oceanic tuna fisheries management revised, and a effective management mechanism reformed with involvement of interested groups.

Activities:

- Develop new legal regulations for managing, exploiting and protecting tuna resources:

Establish the tuna fisheries management paradigm based on TAC, catch quota by vessels and fishing effort controlled congruently with the resource potential;

Introduce fishing rights based regime to the tuna rfisheries in the Vietnam's EEZ;

Regulations on tuna uploading ports for tuna transshipment vessels which carry tuna catches in both Vietnam EEZ and outside waters;

- Revise and concretize some articles of the current legal framework being compatibility with WCPFC measures and international agreements:

Revise and supplement some articles of Fisheries law relating to the operation principles of fisheries and management measures such as catch quotas, fishing license, fishing ports, stock assessment, fishing logbook and report…to conformity with current regulations of the WCPFC.

Stipulate conditions for accessing the tuna fishing y under the Decree No59/2005/NĐ-CP dated May 4th 2005 of the central government on conditions for production and business in fisheries sector;

Revise functions, responsibilities of organizations, individuals involving in management, protection and exploitation of the oceanic tuna under the Decree No 33/2010/NĐ-CP of the central government on management of fishing operations of organizations, individuals of Vietnam.

Revise conditions for being given fishing licenses for vessel building, registry for the oceanic tuna vessels under the Decree No 66/2005/NĐ-CP dated May 19th 2005 issued by the central government on ensuring for fishers and fishing vessel operations.

Revise and supplement provisions on control and surveillance for fishing, protecting and using tuna recourses under the Decree No 107/2005/NĐ-CP dated August 17th 2005 of the central government on organization and operation of fisheries inspections.

Revise the fine and penalty rates violating legal regulations on the tuna fisheries resources under the Decree No -31/2010/NĐ-CP dated 29th March 2010 of the central government on punishments in illegal operation in fisheries sector.

Revise some articles under the Decree No. 32/2010/NĐ-CP dated 3rd March 2010 of the government of the Socialist Republic of Vietnam on management of the foreign fishing vessels operating in Vietnam's water for according to international agreements and conventions.

Restructure the functions and responsibilities of the management mechanism for the tuna fisheries under the Decree No 33/2010/NĐ-CP of the central government on management of fishing operations of organizations, individuals of Vietnam.

Supplement articles on minimum fish sizes, specifications of fishing gears used and fishing methods, fishing seasons, fishing grounds of the oceanic tunas under the Circular No 02/2006/TT-BTS issued by the Ministry of Fisheries (now the Ministry of Agriculture and Rural Development) dated March 20th 2006 on guidelines on implementation of the Decree No- 59/2005/NĐ-CP.

Supplement function of landing enumeration for the fisheries authorities at all governmental levels at joint Circular No 61/2008/TTLT- BNN-BNV dated May 15th 2008 on guidance of functions, responsibility, right and organization structures of specialist agencies of provincial and district levels and duties of state management of commune people committee in agriculture and rural development.

- Establish and strengthen capacity for management system of the tuna management and fishing operations in Vietnam to ensure sufficient capacities to implement the framework of management decision as presented in the figure 2.

Outputs:

- Regulations are revised, supplemented or promulgated for consistent and effective management of the oceanic tuna resources and fisheries in Vietnam's water as well as beyond Vietnamese EEZ.

- A system of fisheries resources protection and the oceanic tuna fisheries will be set up to guarantee implement management measures effectively.

Implementation time: 2013-2014

Implementation agency: Directorate of Fishery, Department of Legal, Provincial Department of Agriculture and Rural Development in the coastal provinces and the WCPFC.

CONTENT 2: Establish and maintain the data collection and analysis system for fisheries management.

Objective: The best scientific knowledge base for making management decisions is provided and updated. This can be shared with domestic and international fisheries databases.

Activities: Data collection for the oceanic tuna management purposes will be conducted regularly and followed guidance of the WCPFC or requirements of the given bilateral contracts. Activities will be carried out under the plan as follows:

- Improve the current database supported under the framework of the project WPEA-OFM and Vietfishbase in order to ensure the dissemination of tuna data collected between the WCPFC, MARD and relevant provinces. Synthesis and development of tuna database to be unique. Currently, data and information related to the oceanic tuna are managed in number of different organizations.

- Develop daily data collection program for the oceanic tuna at fishing ports regulated. Collaborate with GSO to adjust function, responsibilities on fisheries statistics for ensuring data collected meet the fisheries management purposes. Catches of the oceanic tuna data will be significantly collected and reliable. Presently, the GSO is in charge of data collection for marine capture fishery. However, this system does not have sufficient information of catches by species.

- Continue implementing port sampling program at landing sites: following the method of sampling guided by the project WPEA-OFM supported by the WCPFC during 2009 – 2012. In the short term, 2013 – 2015, the sampling program will be conducted in the three central provinces namely; Binh Dinh, Phu Yen and Khanh Hoa, in the later period, the data collection for tuna fisheries will be implemented in the rest of provinces where tunas are caught by the local fishing vessels. This source of data will be used for evaluation of the significant of data collected and direct survey results for stock assessment purposes.

- Revise and enforce the logbook program for tuna fisheries. All vessels fishing the oceanic tuna resources are mandatory to record and submit fishing logbooks by the end of each fishing trip. The logbook data are used as additional sources for cross check the port sampling data and provide more input information for tuna stock assessment works.

- Conduct data collection at fish processing plants and tuna trade units aiming to obtain monthly data of total tuna catches and values for assisting fisheries and resources assessments.

- Assessment of the oceanic tuna fishing effort. Tuna fishing effort estimation will be conducted following the guidelines of FAO to ensure reliable information for estimation of tuna catches, fishing pressure and assist decision making for management of the oceanic tuna fishing effort by waters. Assessment of tuna

fishing effort will be instantaneously implemented with portside sampling program.

- Scientific surveys for assessment of fish stock abundance, estimation of bio-parameters of the oceanic tuna stocks will be conducted twice a year under the project No.47 which has been approved by the government. Combination of the two above sources of data will allow defining the MSY and annual quota, and proposing suitable fishing effort by time and area aiming to use and exploit tuna resources properly.

- Besides, studies on socio-economics in the oceanic tuna fishery will be performed to provide information of economics, society of the relevant communities related to exploitation, protection and use of the oceanic tuna in Vietnam and region in order to achieve sustainable management, effective tuna capture fisheries in Vietnam and the WCPFC waters.

- All data mentioned will be systematized and analyzed by multiple specialization experts: biologist, technicians, socio-economists etc. to propose policies of management, protection, exploitation of the oceanic tuna fishery towards effectiveness and sustainability.

Outputs:

- A consistent and comprehensive database of biology, ecology, socio-economic related to the oceanic tuna fisheries and resources in Vietnam.

- Principles and protocols for data collection, analysis system on tuna fisheries

- Consultancy reports on management, exploitation, protection and use of the oceanic tuna at various levels.

Implementation time:

- Period 2013-2015: conduct with tuna line fisheries (BET & YFT) in 3 provinces Binh Dinh, Phu Yen and Khanh Hoa;

- Period 2016-2020: implement with line, pure seine and gillnet fisheries targeting BET, YFT & SKJ in the whole country.

Implementation agency: Directorate of Fishery, GSO, RIMF, the coastal DARDs and WCPFC.

CONTENT 3: Implement management and conservation measures for tuna resources and tuna fisheries in the Vietnam's waters.

Objective: The oceanic tuna resources are maintained at maximum sustainable yields (MSYs) level and protected, used effectively and equally.

Activities:

- Determine the average MSYs for BET, YFT & SKJ in each 5 year period and annual total allowable catches for each individual fishing vessel by areas based on information updated of fisheries and fish stocks. Instantaneously, parameters such as fish stock biomass at MSY (B_{MSY}), fishing mortality at MSY (F_{MSY}) will be defined to adjust fishing effort properly.

- Control closely fishing effort and capacity of the oceanic tuna fishing fleets of longline, handline, purse seine, gillnet through systems of fishing vessel registration and fishing licenses. Based on the resource potential (MSY, B_{MSY}, F_{MSY}) propose long term fishing effort by time periods and allocate fishing effort yearly which is suitable with variations in the oceanic tuna resources. While the information and data of fish stocks and fisheries are not sufficient, Vietnam will not issue more licenses for the tuna fishing vessels, apply technical regulations on fishing gears to mitigate fishing mortality for bigeye tuna as regulated by the WCPFC.

- Introduce the catch quotas, fishing license transfer regime into the Vietnamese tuna fisheries.

- Take in force regulations on fish size caught, gear restrictions (mesh size, hook types, scale of fishing gears…), fishing methods (FADs, use of light sources to attract fish…) are allowed to use for tuna fishing activities.

- Enforce regulations on closed season, closed area and proportion of bycatch in catches in the oceanic tuna fisheries. Regulations on mitigation of bycatch will be adjusted and applied in the oceanic tuna fishery.

- Implement onboard monitoring program for the oceanic tuna fishing operations in longline, handline, purse seine and gillnet fisheries to collect information for management purposes.

- Implement effectively vessel monitoring system (VMS) for tuna longline vessels under the project MOVIMAR run by the Directorate of Fishery to crosscheck information collected by the logbook program. Information of fishing trip including position catches by fishing hauls will be reported to management agency via satellite.

- Control the total landings of tuna vessels . Total catches (tunas and others) of fishing vessels will be collected at regulated fishing ports. Uploading catches of transshipment vessels will be brought to the shore and uploaded at regulated fishing ports.

Outputs:

- The average MSY, B_{MSY}, F_{MSY}; TAC by fisheries, fishing vessels, fishing areas; annual fishing effort: number of fishing vessels, number of fishing days will be defined based on sufficient data.

- Annual and period reports on state of fish stocks, landings, fishing effort and fishing efficiency, impacts of management measures.

- Reports on number of fishing vessels, landings of the oceanic tunas captured in the beyond waters of Vietnam, annual volume of imported tuna will be available.

Implementation time:

- Period 2013-2015: implement with BET, YFT in Binh Dinh, Phu Yen and Khanh Hoa provinces;

- Period 2016-2020: implement with BET, YFT & SKJ at nationwide.

Implementation agency: Directorate of Fishery, GSO, RIMF, DARDs and WCPFC.

CONTENT 4: Cooperation with other countries and international organizations to control fishing operations, protection and trade in tuna fisheries.

Objective: Exploitation and use of the oceanic tunas will be consistently and transparently managed accordingly to the Vietnamese regulations and international agreements which Vietnam signed and committed to implement.

Activities:

- Collaborate with the WCPFC and relevant countries to manage the oceanic tuna fishing activities of Vietnamese fishing vessels in the common areas, and EEZs of the others by Vietnam's law and international regulations and the host countries. Comply all management measures: fishing license, registration, gear restriction, fishing method, quota, fishing effort, fishing reports, inspection and control…

- Implement conservation and management measures for tuna resources promulgated by the WCPFC under the CMM 2008-01 and CMM 2011-01.

- Perform monitoring, surveillance and control measures for tuna fishing vessels of Vietnam operating in the country's EEZ, and in international waters. Participate into the regional observer programs. Responsibilities of the observers and vessel owners are regulated by the WCPFC or certain conventions of the relevant stakeholders. All Vietnam's tuna fishing vessels which operating outside the national EEZ will be informed about their rights and responsibilities related to fisheries inspection, surveillance of the regional relevant agencies or host nations.

- Strictly manage transporting operations, exchanges of the oceanic tuna at sea. The tuna transshipment vessels are issued licence and allowed to buy tunas of

Vietnam's fishing vessels or foreign vessels or transport tunas to consumption markets. During trade process, sufficient and correct records of quantity, origination must be fulfilled according to Vietnam's law and international regulations.

- Records of information of catches, origination by species will be regularly implemented at fishing ports, fishing vessels, middlemen, fish processing plants, exporting companies in order to control fishing, utilization and quarantine practices accordingly to the WTO regulations and international and regional fisheries organizations.

- Continue implementing management of fish traceability and origination certificates of the oceanic tuna originated from Vietnam following regulations of imported markets (USA, EU, and Japan) and domestic market. Compliance with all regulations of trade convention and tariff (GATT) in global tuna trade will be carried out.

- Fully implement action plan on prevention, mitigation and combating IUU fishing operations (IPOA-IUU) issued by FAO and adopt national plan of action for IUU fishing (NPOA-IUU) of Vietnam's government. Inform and update regularly fishing vessel owners who violate the regulations presented in the IPOA-IUU and NPOA-IUU.

- Improve the management system of the oceanic tuna fisheries to obtain eco-label of MSC for the oceanic tuna products of Vietnam.

- Issuing fishing license for the oceanic tuna fishing vessels operating beyond the Vietnamese waters under the international conventions or bilateral contracts with other nations. Cooperate with international organizations such as WCPFC, IOTC, ICCAT and governments of countries who issue fishing license and manage tuna fishing operations outside the Vietnamese EEZ according to international or the host country's regulations.

Outputs:

- List of Vietnam's fishing vessels operating outside Vietnamese EEZ.

- Black list of fishing vessels violating IPOA-IUU, NPOA-IUU.

- System of management of traceability and catch certificates for oceanic tuna will be improved and operated effectively.

- Annual report on results of implementation of solutions for management, protection, use of the oceanic tunas of international organizations in Vietnam.

- Certificate of eco-label issued by MSC for tuna products of Vietnam.

Implementation time: 2013-2020

Implementation agency: MARD, Ministry of Foreign Affair, Ministry of Trade, Ministry of Defense, PPC of the coastal provinces, FAO and WCPFC, IOTC, ICCAT.

ANNEX: Management measures and Implementation schedules

No.	Activities	Current legal frameworks	Outcomes	Responsible agencies	Timing
1. Legal regulations and management institutions					
1	Establish a management regime e.g. framework, institution, fishing licence, catch control, enforcement, inspector … for tuna fisheries	A general combination of the input, output and technical measures for all fisheries and stocks regulated by Fisheries law, Decree 59, 66, 33, 32, 107, 128	A circular or decree established	Directorate of Fisheries (D-Fish) and RIMF	2013-2014
2	Technical measures will be established: fish size to be landed, fishing gear parameters, close time and areas, fishing methods (luring, FADs…)	Not for big eye (BET) and yellow fin tuna (YFT)	A new circular issued by Minister of MARD	RIMF, DECAFIREP, Legislation Department (LD)	2013
3	Establish mechanism for collecting data: landings enumerator system, sampling program at ports, observer program	Irregularly and unsystematically	The circular No.61 A will be revised and supplemented	Directorate of Fisheries (D-Fish), Sub-DECAFIREP	2013
4	Enforcement of logbook and fishing report program	Degree No. 33/2010/NĐ-CP and Circular No. 48/2010/TT-BNN	A provision in a new circular	DECAFIREP, LD	2013

		Not complied			
5	Regulation on landing sites	No	A number of fishing ports are nominated to land YFT & BYT	DECAFIREP, LD	2013
2. Collecting data for management of tuna fisheries (being compatible with the WCPFC protocols)					
6	Developing a web database based on the WPEA-OFM project and others for tuna fisheries over country	Stored in DECAFIREP, RIMF, Sub-DECAFIREP of BD, PY, KH provinces	A systematic and updating data collection system (protocol, guidelines, forms…) of tuna fisheries developed and operated stably from Hanoi to provinces	DECAFIREP, Sub-DECAFIREP, RIMF	2013 for BYT & YFT 2014 for SKJ also
7	Enumerating the catch of tuna and others harvested by long-line, purse seine and gillnet for tuna	WPEA-OFM in BD, KH, PY, Program 47 for most key landing sites.	A database on the total catch and species composition of the tuna fisheries updated. All catches must be landed and reported	DECAFIREP, Sub-DECAFIREP, RIMF	For BYT & YFT, SKJ in Binh Dinh, Phu Yen, Khanh Hoa, Binh Thuan, Vung Tau and Danang. from 2013 For other provinces

					from 2014
8	Remaining sampling program at ports for tuna and incident species	WPEA-OFM in BD, KH, PY, Program No. 47 for most key landing sites.	A database on the biological parameters, catch ratio… of tuna and other species and learned and updated	DECAFIREP, Sub-DECAFIREP, RIMF	For BYT & YFT from 2013 For SKJ from 2014 For all landing sites
9	Enhancing the logbook and fishing report of the tuna fisheries	WPEA-OFM in BD, KH, PY and other project	A database on the fishing trip, fishing position, catches… of the tuna catching vessels established and operated	DECAFIREP, Sub-DECAFIREP, RIMF	For tuna lining from 2013 For purse seine and gill nest from 2014
10	Collecting data at middlemen and processing bases	Not	A database on the quality and species of tuna going into and out of the bases enumerated regularly	DECAFIREP and Sub-NAFIQAD	For BYT & YFT in BD, PY, KH, DN, TP.HCM from 2013 For SKJ and other provinces from 2014

11	Estimating fishing effort (fishing days at sea) for tuna fisheries	The number of vessels reported yearly	A database on fishing effort updated monthly	DECAFIREP and Sub-DECAFIREP	For tuna lining in BD, PY, KH from 2013 For tuna gillnetting and purse seining and in other provinces from 2014
12	Collecting information on the socio-economic aspects of the tuna fisheries	Not regularly. This was designed in the program No. 47 for all fisheries	A database on the economic and social aspects e.g. income, costs, labours, services… collected and updated yearly.	RIMF, VIFEP and DECAFIREP, Sub-DECAFIREP	Yearly from 2013
13	Conducting scientific surveys by tuna longline and drift gillnet vessels	This has been conducting in the program No.47 (1-2 survey trips per year) since 2011	A database on biological parameter, abundance, distribution, catch rate… collected and updated regularly	RIMF and DECAFIREP	Yearly from 2012

14	Onboard observer program for tuna fisheries	Not regularly implemented.	A database on fishing trips, catches, catch composition, by-catch, fishing effort… collected and updated regularly	DECAFIREP, Sub-DECAFIREP, RIMF	From 2014
3. Implementing management measures					
15	Providing scientific bases for management measures based on the best available information on biological, ecological, socio-economic and institutional	Not comprehensive	Consultation report for making decision yearly and temporally	Consultation team/council, RIMF, VIFEP, WCPFC, DECAFIREP	Yearly from 2013
16	Determining the average MSY 2013-2018 for making the long term and medium term management plans and annual TACs of BYT, YFT, SKJ for individual vessels and in given fishing areas	Biomass and MSY for BET, YFT, SKJ and some large pelagic fish estimated in 2005, not updated	The average MSY of BET, YFT, SKJ in 2013-2018 and annual TACs of them determined	Consultation team/council, RIMF, VIFEP, WCPFC, DECAFIREP	Yearly from 2013
17	Limitation of fishing effort for BET & YFT	Open-access	Remaining the same fishing	DECAFIREP, Sub-DECAFIREP	From 2013 and

			effort (number of vessels) as the current status		adjusting fishing effort accordingly to the trend of CPUE and the best scientific evidences
18	Determining the total fishing effort congruent with the MSY of resource capacity	Not	The total fishing days at sea of fleets determined	Consultation team/council, RIMF, VIFEP, WCPFC, DECAFIREP	Yearly from 2014
19	Introduction of the output control, rights-based for BET & YFT long line fishery	Regulated in the Fishery law, but not guided by decrees and circulars	The TACs allocated to vessels and the catch of individual vessels controlled	DECAFIREP, Sub-DECAFIREP	From 2015
20	Enforcement of technical measures e.g. fish size, fishing method, closed time and areas to protect tuna resources	Lacking compliance	All tuna fishing practice complied with legal regulations	DECAFIREP, Sub-DECAFIREP, Fisheries Inspector Force (FIF)	From 2015

21	Introduction of the VMS for tuna line fishery	Installing equipment	All tuna line vessels are monitored at sea	DECAFIREP, Sub-DECAFIREP, Fisheries Inspector Force (FIF)	- 2013: 30% of the tuna long line vessels are installed with VMS equipment. - 2015: all tuna long line vessels. - 2020 : all tuna purse seine will be monitored by VMS.
4. Trading and marketing of tuna and tuna products					
22	Application of international and regional measures to protect and utilise tuna resources sustainably and equitably	Partly	All WCPFC conservation management measures introduced and enforced in Vietnam	DECAFIREP, Sub-DECAFIREP, WCPFC	2014 introduced, and enforced, complied from 2015
23	Implementing control and onboard inspection to tuna fishing vessels	Not	Tuna long line vessels first and then for purse seine, gill net vessels	DECAFIREP, Sub-DECAFIREP, FIF, WCPFC	2013 for BEYT & YFT line vessels and from 2015

					to tuna fisheries
24	Issuing licence for Vietnamese vessels fishing outside the Vietnamese waters	Not	Depending on the bilateral and regional agreements	DECAFIREP, WCPFC, ICCAT, IOTC, and other countries	From 2015
25	Listing IUU fishing vessels	Partly	All tuna fishing vessels checked regularly	DECAFIREP, Sub-DECAFIREP, FIF, WCPFC	2013 for BET & YFT long liners, 2015 for tuna purse seiners and gillnetter
26	Control tuna transhipment at sea and ports	Not	Transhipment of tuna at seas and ports must be reported fully	DECAFIREP, Sub-DECAFIREP, FIF, NAFIQAD, WCPFC	2014

27	Trade and market of tuna and tuna products originated in Vietnam. Issue certificate and traceability	Not very much smoothly	More smoothly within the framework of the General Agreement on Tariffs and Trade (GATT) and WTO Agreements and international markets. All tuna and tuna products originated from Vietnam are traced and given certificate	DECAFIREP, Sub-DECAFIREP, FIF, NAFIQAD, WCPFC	Continued
28	Sanitary and Phytosanitary Measures and Commodity Clearance	Not very much smoothly	More smoothly within the principles of the WTO Agreements. Application of HAACP, GMP	DECAFIREP, Sub-DECAFIREP, FIF, NAFIQAD, WCPFC	Continued
29	Getting MSC's eco-label certificate for tuna and tuna products originated from Vietnam	Not	The eco-label certificate for tuna and tuna products originated from Vietnam issued by MSC	DECAFIREP, WWF, WCPFC	2018