

Pacific Studies Series

Toward a New Pacific Regionalism

An Asian Development Bank—Commonwealth Secretariat
Joint Report to the Pacific Islands Forum Secretariat

VOLUME 3: WORKING PAPERS

Working Paper No. 4

South Pacific Forum Fisheries Agency: Benefits and Costs

Michael Hyndman
Pacific Plan Office, Forum Secretariat
Suva, Fiji Islands

Preface

This report was prepared for the Pacific Islands Forum Secretariat (PFIS) in Suva, Fiji Islands. The report is one output of an Asian Development Bank (ADB) technical assistance project (TA 6226 REG): “Developing and Implementing the Pacific Plan for Strengthening Regional Cooperation and Integration.” The Commonwealth Secretariat provided funding to the project.

The lead author of the report was Dr. Roman Grynberg, Deputy Director of Trade and Regional Cooperation at the Commonwealth Secretariat. He was assisted by Michael Hyndman, a cost-benefit analyst contracted by ADB, and Sacha Silva, an economist contracted by the Commonwealth Secretariat. Consultants from PIFS and the Pacific region provided valuable inputs for the report. Bill Costello was the ADB task manager.

The report is published in three volumes. Volume 1 is the Executive Summary. Volume 2 is the main report. Volume 3 contains the working papers commissioned for the report—a series of independent studies assessing potential benefits and costs of implementing a variety of possible regional initiatives. Volume 3 has been printed in hard copy in only limited numbers. However, it is available on the websites of ADB (www.adb.org) and at www.pacificplan.org.

Disclaimer

The views expressed in this book are those of the authors and do not necessarily reflect the views and policies of the Asian Development Bank, or its Board of Governors or the governments they represent.

The Asian Development Bank does not guarantee the accuracy of the data included in this publication and accepts no responsibility for any consequences of their use.

Use of the term “country” does not imply any judgment by the authors or the Asian Development Bank as to the legal or other status of any territorial entity.

CONTENTS

	Page
PREFACE	ii
ACKNOWLEDGEMENTS	iv
EXECUTIVE SUMMARY	v
I. INTRODUCTION	1
II. BASIC FACTS ABOUT ROLE OF THE FORUM FISHERIES AGENCY	2
A. Creation of FFA	
B. Functions of FFA	
C. Structure, Governance, Membership, Goals, and Resourcing of FFA	
III. FFA's CONTRIBUTION TO MEMBER COUNTRIES IN THE REGION	4
A. Overview of How FFA Benefits its Members	
B. Specific Results Achieved Largely Due to FFA Action	
C. Broader Outcomes Stemming from FFA's Action To Date	
D. Quantitative Indicators of Net Benefits Arising from FFA Action	
E. Counterfactual Scenario in Absence of FFA	
IV. CONCLUSIONS	42
Appendix: Key Events in the Life of the South Pacific Forum Fisheries Agency	44

Acknowledgements

The author has received valuable help and comments from the following people:

Robert Gillett, Independent Fisheries Consultant

Len Rodwell, Manager Economics and Marketing, FFA; and

Les Clark, Independent Economic Consultant.

EXECUTIVE SUMMARY

Rational for Creating Forum Fisheries Agency

In August 1979 the member countries of the South Pacific Forum created the Forum Fisheries Agency (FFA) to help them to manage and develop their highly migratory tuna resources in the western and central Pacific Ocean. They saw the need to *cooperate* to pool their resources and adopt coordinated action to secure their exclusive economic zone (EEZ) rights, sustainably manage the fisheries within their EEZs, and secure a fair share of the benefits from them. They created the FFA as the *regional body* to provide an effective vehicle to achieve these goals.

Broad Economic and Social Benefits

A **qualitative analysis** of the FFA's actions over the 25 years since its creation - and the results that it has had a pivotal part in achieving - indicate that it has provided significant net benefits to FFA member countries, both collectively and individually. In broad terms, its actions have helped enable member countries to realise major economic and social benefits, notably including:

- a. **Securing and upholding sovereign rights over EEZ:** Regional cooperation exercised in solidarity through the aegis of the FFA was instrumental in securing early, effective recognition of their sovereign rights over the respective EEZs (e.g. *de facto* recognition in the 1987 United States (US) Multilateral Treaty);
- b. **Enabling beneficial access agreements to be negotiated:** This effective recognition provided a firm building block for securing fisheries *access agreements* with other distant-water fishing nations (DWFNs) (including sub-regional arrangements) and the resultant economic and social benefits for member countries, including:
 - *Direct fiscal benefits from access fees* (or payments) received;
 - *Direct economic and social benefits from domestic industries* developed to harvest the catch (e.g. domestic base for a DWFN fleet); process the catch (e.g. canneries), tranship the catch, or service the fleet – where economic benefits comprise the producers' surpluses yielded by activities, and social benefits comprise the net employment created;
 - *Indirect economic and social benefits* - from flow-on activities precipitated by the primary activities – which typically multiply the direct economic and social benefits from the original activities;
 - *Better fisheries management and conservation in their EEZs* achieved via member countries' strengthened ability to secure DWFNs' agreement to minimum terms and conditions of access that help to yield more effective management and conservation of the fish stocks in the EEZs; and
 - *Potentially better fisheries management and conservation in the high seas* of the Western Central Pacific Ocean (WCPO) adjacent to, or impacting on, fisheries within their EEZs (i.e. through the role of the newly created Commission). But achieving this outcome remains work-in-progress which is a major challenge for the FFA's future role.

Particular Results

Particular results that FFA has been pivotal in achieving, which typify these broader benefits, include:

- a. *Nauru Agreement (1982)*: This *sub-regional agreement* between seven member countries (Federated States of Micronesia [FSM], Kiribati, Marshall Islands, Nauru, Palau, Papua New Guinea [PNG] and Tuvalu) has essentially resulted in their requiring DWFNs to meet **uniform minimum terms and conditions of access** to fisheries within their respective EEZs. Although this uniform stand initially met with some strong DWFN resistance, the conditions have since been generally accepted and encourage fishers to comply with the wider rules to ensure the fisheries are managed sustainably.
- b. *Regional Register of Foreign Fishing Vessels (1984)*: The FFA created and runs a central **register** of foreign fishing vessels, which must be in “good standing” on the register as pre-requisite to being licensed to fish in member countries EEZs. Vessel information in the register helps in assessing compliance, especially given its extensive coverage. Overall these features have made the register helps an effective tool for monitoring and enforcing compliance with fisheries regulations and access conditions.
- c. *US Multilateral Treaty on Fisheries (1987)*: This multilateral agreement between all member countries and the USA Government has paid them a total of United States dollars (US\$)276 million in the first 16 years of the treaty’s operations, but 79% of this went to just five such countries (FSM, Kiribati, Nauru, PNG and Tuvalu) reflecting the very uneven distribution of tuna fish stock in the region’s EEZs. The treaty’s related benefits to member countries include:
 - A high payment rate for the volume and value of fish caught;
 - Some income security for all member countries because it includes a fixed minimum payment, as well as the catch-related payment major component;
 - Medium-term certainty about the basis of these access related payments;
 - Flag-country acceptance of a duty to ensure compliance with all of the treaty’s terms and conditions, plus action effectively implementing this duty;
 - A negotiating precedent for use to encourage other DWFNs to agree to similar multilateral fisheries agreements, although it has yet to bear fruit.
- d. *Niue Treaty on Cooperation in Fisheries Surveillance & Law Enforcement (1992)*: This sub-regional agreement (adopted by Palau, Marshall Islands and FSM) provides a **framework** for regional cooperation in fisheries surveillance and law enforcement. It reinforces member countries’ resolve and ability to monitor and enforce foreign-fishing vessel compliance with fisheries regulations and access terms and conditions in their EEZs.
- e. *Palau Arrangement (1993, 1997 & 2003)*: This is a *supplementary* sub-regional arrangement between the parties to the Nauru Agreement. Its main aim is to protect the biological and economic and sustainability of the fisheries. Its initial means was to control the purse seine **vessel numbers** operating in the region. But since 2003, it has focused on controlling the **level of fishing effort** in each EEZ (as measured in terms vessels *fishing days*). It is too early to judge the revision’s effectiveness.
- f. *FSM Arrangement for Regional Fisheries Access (1994)*: This is a further such *supplementary* arrangement between parties to the Nauru Agreement. Its main aim is to promote more local participation in the fisheries their respective EEZs. To this end the parties have *harmonised* their fisheries **access regimes** essentially to provide the *parties’ vessels* with access on conditions no less favourable than for *foreign fishing vessels* under bilateral access arrangements. But it seems that one of the parties is reaping most of the resultant benefits, while the others bear the cost of no longer being

able to extract valuable bilateral access premiums from DWFNs (as they all agreed to harmonised access conditions). The future of this arrangement is uncertain.

- g. *FFA Vessel Monitoring System*: The FFA administers a satellite-based, real-time vessel **monitoring system**. It also maintains a register of fishing vessels of all types that comply with the FFA_VMS system requirements. As at June 2005, some 1060 vessels of all of all types were in “good standing” on the register. This user-funded system is now an effective monitoring and compliance tool for member countries.
- h. *Convention for Conservation and Management of Highly Migratory Fish Stocks of the Western and Central Pacific Ocean (2004)*: This international agreement represents a major milestone in the development of measures to conserve and manage the major tuna fisheries in the wider region, on two counts: (1) it covers both national EEZs and adjacent high seas, both of which require coordinated action to manage sustainably the highly migratory species; and (2) the parties to it comprise both coastal states and DWFNs. The FFA’s expert advice and role in enabling members to reach a consensus on vital issues to be negotiated, has played a key role in helping member countries to achieve the best feasible outcomes: both in terms of the Convention’s substance, and the detailed operating rules and procedures for the Commission just created to implement it. But there remain major issues yet to be resolved by the new Commission. Only time will tell how effective it will be in benefiting member countries, and how effective the FFA will be in helping to ensure that it does so.

Regional Cooperation Features Contributing to these Results

Underlying the FFA’s success in helping member countries to obtain such results are four key features of this regional cooperation:

- a. *Access to relevant fisheries expertise*: First, regional cooperation enabled member countries to access via the FFA a *critical mass* of expertise in fisheries management and conservation mandated to serve them exclusively, as well as a capacity to coordinate or administer regional and sub-regional activities.
- b. *Enhancing negotiating strength*: Support of the FFA’s expertise has helped to redress the negotiating imbalance between coastal member countries – all but two of whom are developing island states (many being developing small-island states) – and predominately developed, wealthy DWFNs.
- c. *Providing economies of scope and scale*: The concentration of resources and coordination of effort yielded obvious *economies of scale and scope* for member countries (e.g. in securing cost-effective dedicated supply of expert information-gathering, analysis, advice and support on fisheries issues). Without this regional cooperation, the overall cost of each country obtaining these services would have been much higher. Moreover, in reality the practicalities of otherwise obtaining such services may have led some member countries to go without them altogether.
- d. *Reducing conflicts of interest*: Creating a regional fisheries body dedicated exclusively to the interests of coastal states in the region (i.e. excluding DWFNs unlike other regional fisheries bodies), reduces the degree of conflicting interests within the organisation. As a result the FFA seems to have been more able *internally* to resolve issues and *externally* to take a united stand on in dealing with other parties such as DWFNs.

Practical Quantification Problems

Quantifying these benefits accurately, however, is a very difficult if not impossible task because of several key problems:

- a. *Joint contributions*: The FFA's contributions to particular fisheries-related outcomes usually are not the only contributing factor. But to distinguish and measure reliably one part of a joint contribution is very difficult in practice. Efforts to do so inevitably involve ball-park guesses based on judgement
- b. *Counterfactual scenario*: Measuring the net benefits from FFA actions also requires identifying the most likely scenario that otherwise would have occurred in the absence of the FFA, and measuring its likely resultant net benefits. But there is no *a priori* unique *counterfactual scenario*. The estimated net benefits from this scenario must be deducted from those attributed to the FFA from the outcomes it has contributed to. Without this step, the FFA's contribution would be overstated, by overlooking the amount of net benefits that could have been expected in the absence of the FFA.
- c. *Other information requirements*: Even if these two problems can be resolved, obtaining the information needed to measure reliably the *opportunity costs* of the FFA's activities - and resulting benefits (in terms of people's willingness-to-pay for them) - has also proved to be a significant further practical hurdle. While there is considerable empirical biological time-series data available about the fisheries, there is a dearth of accurate time-series information publicly available about the economics of the fisheries (including access fee payments).

For these reasons **quantitative analysis** was limited to identifying indicators of the costs and benefits of the FFA's activities, rather than: (1) attempting to value the whole stream of estimated benefits and costs from each outcome to which the FFA has contributed; (2) isolating the parts attributable solely to the FFA; and (3) deducting the whole stream of estimated benefits and costs from the various outcomes expected to have occurred under the most plausible counterfactual scenario.

Indicators of Benefits and Costs

Indicators of Net Benefits of FFA

The FFA's annual income and expenditure figures indicate the level of *opportunity cost* that the region otherwise would have had to incur to produce the outputs that have benefited member countries. **Total expenditure** on FFA inputs over the entire 25-year period to 2004 was about US\$75 million, as shown in *Table 1*.

Over this period **member contributions** totalled US\$14.2 million (or 18.9%) of the FFA's total income, with **other income sources** providing the remaining US\$60.7 million (or 81.1%), mostly as development assistance. This latter figure may be used as a *partial, indirect indicator* of aggregate net benefits to *all member countries*. When allowance is made for development assistance provided by Australia and New Zealand, this total rises to US\$64.6 million, which is a partial indicator of *benefits to developing member countries*.

US Multilateral Treaty on Fisheries: Net Benefits

The FFA played a pivotal role in helping member countries to negotiate the US Multilateral Treaty on Fisheries that came into force in June 1988. Key benefits that the treaty has provided member countries may be summarised as follows: treaties benefits may be summarised Its

beneficial features Total payments and allowance paid annually under the treaty by member country. In particular it shows:

- a. *Total payments*: Over the 16 licensing years 1988/89 to 2003/04 member countries received **total payments** of almost US\$200 million under the treaty;
- b. *Vast majority of payment went to a few countries*: Five countries (FSM, Kiribati, Nauru, PNG and Tuvalu) received 79% of the total payments and allocations in these 16 years. This reflects uneven biological distribution of the catch, and thence the 85% catch-related component shown in Table 3(a).
- c. *Total payments stable but shares vary*: Aggregate total payments to member countries are stable from year to year, but individual shares can vary greatly.
- d. *Payments as % of catch value high and rising*: Total annual payments expressed as a percentage of total landed catch value, are relatively high and rising as catch volumes fall: from about 11% in 1988/89 licensing year, to over 20% currently.

Estimates Fisheries Contribution to GDP

Gillett and Lightfoot¹ have estimated the **contribution to GDP** made by fisheries in developing Pacific Island countries, notably each FFA member country except Australia and New Zealand. The figures for the year 1999 (essentially) range from a high of contribution 21.5% of GDP for Kiribati; to a low of 1.4% for PNG, with an average of 6.98%.² But again these figures cannot quantify the extent to which the FFA actions have contributed to these outcomes.

Estimated Rates of Fisheries Access Fee Payments

In aggregate, developing member countries' access fees as a percentage of catch value is understood to *average* about 6% to 7%, with variations between different fleets and the basis of setting the fee.

FFA's Contribution to above Fisheries-related Benefits

None of the foregoing quantitative indicators of benefits under the US Multilateral Fisheries Treaty; the contribution of fisheries to GDP; or fisheries access fees; can tell us the value of net benefits attributable to the actions of the FFA, including its support for various sub-regional arrangements.

In practice, we cannot measure reliably its part in either: the contribution fisheries have made to the GDP of member countries; or the total amount they receive in fisheries access fees individually or collectively. Too many other factors have also contributed to these outcomes for it to be feasible to reliably separate out the individual contributions of the FFA.

The value of the FFA's cumulative contribution to-date necessarily remains illusive and speculative. All that can prudently be said about the benefits from its actions is that, in some cases such as negotiation of the US Multilateral Fisheries Treaty, they appear to have played a major role in helping member countries secure sizeable net benefits. It may also be argued that these actions also have played a major part in ensuring that the tuna fisheries in their EEZs have remained in tact sufficiently to enable them still to *obtain* such benefits, or at least have the *option* to do so.

¹ GILLETT, Robert and Chris Lightfoot; "*The Contribution of Fisheries to the Economies of Pacific Island Countries*"; December 2001.

² In the case of PNG, however, this low percentage reflects the fact that despite fishing contributing a sizeable amount in absolute terms, relative to its relatively large economy the proportionate contribution is small.

Conclusions

In 1997, members of the South Pacific Forum decided to *cooperate* to create a regional fisheries agency, the South Pacific Forum Fisheries Agency (FFA) to serve them. Their foresight has been repaid many-fold. Over the 25 years since coming into effect in 1979, the FFA has played a pivotal role in *helping* member countries to secure ongoing economic value from the fisheries in their respective EEZs.

Underlying the FFA's success in helping member countries to obtain such results are four key features of this regional cooperation. First, pooling scarce resources and coordinating their use has yielded obvious *economies of scale and scope* for member countries. This has enabled them to obtain a cost-effective dedicated supply of expertise, information, analysis, advice and support for fisheries issues which for many otherwise may not have been available. Second, FFA's expert support has helped to member countries (all but two of whom are developing island states) to redress their negotiating imbalance vis-à-vis largely developed, wealthy DWFNs. Finally, creating a regional body focused exclusively on the interests of coastal states in the region has reduced the degree of internal conflicts of interests within the organisation. As a result the FFA seems to have been more able *internally* to resolve issues and *externally* to take a united stand on in dealing with other parties such as DWFNs.

But, of course some conflicts of interest inevitably do arise between member countries for a variety of normal reasons. Wide differences in the shares of costs and benefits from regional or sub-regional cooperation typically cause conflict between the parties and ultimately can undermine its likelihood of success. The more each of the parties to an actual or potential regional cooperative activity share *both* common goals *and* a similar level of net benefits, the more likely the cooperation is likely to succeed.

Finally, despite the catalogue of qualitative benefits arising directly or indirectly from the FFA's activities, it is not feasible to quantify reliably the value of net benefits attributable to its actions. Too many other factors have also contributed to these outcomes for it to be feasible to reliably separate out the individual contributions of the FFA. Moreover, it is not feasible to quantify reliable the net benefits that otherwise are likely to have arisen under the most counterfactual scenario if the FFA had not been created. All that can prudently be said is that its actions appear to have played a major role in helping member countries secure sizeable net benefits from their fisheries.

I. INTRODUCTION

This paper reviews the role of the South Pacific Forum Fisheries Agency (FFA) since its creation in August 1979, and evaluates its impact on the South Pacific Forum (Forum) member states. While the focus of the review is mainly retrospective, it also considers the prospective impact of the FFA's action to date and ongoing role.

The review comprises both a qualitative evaluation of its actions and their probable impacts, and a quantitative evaluation to the extent feasible. These evaluations are based on analysis of the findings of existing research studies and other relevant documents by fisheries experts. The review is not a formal cost-benefit analysis (CBA). Such an exercise was impracticable due to: (1) major information limitations; and (2) the difficulty of reliably isolating and quantifying the FFA's contribution to fisheries outcomes, allowing for what otherwise was likely to have occurred in its absence.

An important goal of this summary review is to show the potential *net benefits* that may be achieved from regional and sub-regional cooperation amongst Pacific Island Forum Member states, and what *lessons* this particular ongoing regional activity has for possible new regional or sub-regional cooperation interventions.

The remainder of this review is structured as follows. **Section 2** outlines and explains the **basic facts** about the FFA and its role since 1979 - including its structure, governance, membership, goals and resourcing.

Section 3 assesses the FFA's **likely contribution** to actual fisheries outcomes for Pacific Forum Member coastal states over this period. This section also briefly assesses the FFA's likely *future* impact, given developments already under way.³ discusses how the foregoing outcomes might have differed, and why, if the FFA had not been created. Resolving what this "*counterfactual scenario*" most likely would have been is necessarily conjectural and required informed judgement. With a robust counterfactual scenario identified, the FFA's contribution to actual outcomes is assessed as the difference between what actually happened with the FFA and what is assumed to be most likely to have happened in its absence.

Section 4 summarises the **findings** of the evaluation in the previous section, including vital lessons as to what factors are likely to be critical for regional or sub-regional cooperation activities to be successful.

Sections 5 comprises a **bibliography** of reports and documents that were reviewed in preparing this evaluation.

Appendix 1 comprises a tabular time profile of **key events** in the life of the South Pacific Forum Fisheries Agency to help readers appreciate the contribution made by the FFA's activities and their context.

³ For example, FFA is involved in work under way to bring into operation the *Western and Central Pacific Fisheries Commission* mandated by the Convention for Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean that came into force on 19 June 2004.

II. BASIC FACTS ABOUT ROLE OF FFA

A. Creation of FFA

In August 1979 the member countries of the South Pacific Forum created the FFA to help them manage and develop their living marine resources, notably the highly migratory tuna species in the western and central Pacific Ocean. Its creation was the Forum's direct response to its recognition two years earlier of the:

- a. Dangers of fisheries exploitation in the region given "the continued absence of a comprehensive international convention on the law of the sea and ... the action taken by a large number of countries including distant water fishing countries exploiting the valuable highly migratory species in the region;"
- b. Need for such an agency to facilitate regional action by enabling and helping member countries to "move quickly to establish fishing or exclusive economic zones and ... take steps to coordinate their policies and activities if they are to secure more than a very small part of the benefits from their resources for their peoples;" and
- c. Importance of a unified approach whereby member countries "coordinate and harmonize their policies on the law of the sea so as to ensure the maximum benefits for their peoples and for the region as a whole and, specifically, ... harmonize fisheries policies in the region and ... adopt a coordinated approach in their negotiations with distant water fishing countries."⁴

B. Functions of FFA

The FFA's main functions – which relate to the parties to the FFA convention - are to:

- a. "Collect, analyse, evaluate and disseminate ... relevant *statistical and biological information* with respect to the living marine resources of the region and in particular the highly migratory species;
- b. "Collect and disseminate ... relevant *information* concerning *management procedures, legislation* and *agreements* adopted by other countries both within and beyond the region;
- c. "Collect and disseminate ... relevant *information* on *prices, shipping, processing* and *marketing* of fish and fish products;
- d. "Provide, on request, ... *technical advice* and *information, assistance* in the development of fisheries policies and negotiations, ... issue of licences, ... collection of fees or in matters pertaining to surveillance and enforcement;
- e. "Seek to establish *working arrangements with relevant regional and international organisations*, particularly the South Pacific Commission; and
- f. "Undertake such *other functions* as the Committee may decide."⁵

⁴ Eighth South Pacific Forum Resolution: "Declaration on Law of the Sea and a Regional Fisheries Agency; 31 Aug 1977.

⁵ South Pacific Forum Fisheries Agency Convention, August 1977.

C. Structure, Governance, Membership, Goals and Resourcing of FFA

1. Organisational Structure

The FFA comprises the *Forum Fisheries Committee* (FFC) and a *Secretariat* based in Honiara, Solomon Islands. Each member country which is a party to the convention is entitled to one representative on it.

The role of the Committee is to oversee the Secretariat's work, set its strategic direction, and approve its budget and work programme. It is also charged with promoting "intra-regional co-ordination and co-operation" in various fields including: (1) "*harmonisation of policies* with respect to fisheries management"; and (2) "*cooperation in respect of relations* with distant water fishing countries." The Secretariat's operations are managed by a Director who is appointed by and reports to the FFC.

The Committee's decisions are usually made by consensus. But where this is not possible each member shall have one vote, and decisions shall be taken by a two-thirds majority of the members present and voting.

2. Membership of the FFA

Membership of the FFA is open to: (a) *members* of the South Pacific Forum; and (b) *other states or territories in the region* on the recommendation of the Committee and with the approval of the Forum!

3. Strategic Goals for FFA's role

The FFA's current strategy and work plan are expressed in the following vision and mission statements:

- a. *Vision* that South Pacific Forum member countries (member countries) "*will enjoy the highest level of economic and social benefits that is compatible with sustainable use of ... [the] ... resources;*" and a
- b. *Mission*, "*To enable member countries to manage, conserve and use the tuna resources in their Exclusive Economic Zones and beyond, through enhancing national capacity and strengthening regional solidarity.*"⁶

4. Resourcing and Capacity of FFA

The FFA's Secretariat has a professional and support staff establishment of about 50 people, and an annual budget of about US\$4 million to support its overall activities, including the work of the Secretariat.

Funding for the FFA's activities comes from:

- a. *Members' contributions* which are prescribed by a formula set by the Committee, which has typically provided about 20% of total funding;
- b. *Donors support* on a bilateral basis and from multilateral agencies, which has provided the majority of the financing; and
- c. *Fees charged by FFA* on a partial cost-recovery basis [e.g. Vessel Monitoring System (VMS), US Multilateral Treaty observer programme, vessel registration] which has provided a very small proportion of total funds.

⁶ FFA Corporate Plan:

III. FFA'S CONTRIBUTION TO MEMBER COUNTRIES IN THE REGION

A. Overview of How FFA Benefits its Members

The FFA has benefited member countries by providing them with an ongoing means to enable them:

- a. To develop informed **strategies** to achieve their common goals for fisheries in the region; and
- b. To facilitate and coordinate **action** by them to implement such strategies.

Its creation has led to the concentration within it of a *critical mass of expertise* in many aspects of fisheries management and conservation, as well as effective coordination of their use. This concentration of resources and coordination of effort has yielded obvious *economies of scale and scope* in terms of securing for member countries a cost-effective dedicated supply of expert information-gathering, analysis, advice and support on fisheries issues. If member countries had not cooperated to create the FFA, the cost to each country of individually obtaining these services would have been much higher. Also, the practicalities of otherwise obtaining such services may have led some member countries to go without them. The following subsections outline some of the FFA's key outputs and how they have assisted member countries.

1. Help to Secure Suitable Regulation of Fisheries

The FFA has helped member countries collectively to develop informed regulatory strategies for their fisheries by *compiling, evaluating and disseminating* relevant **information** to members about: (1) the region's fisheries; (2) existing management practices and their likely impacts on the sustainability of fish stocks; and (3) other management options, their impacts, precedents elsewhere and impacts. Judging from the fisheries regulatory regimes that are *now* in place and operating in their EEZs, this aspect of the FFA's role seems to have been successful. Today's regional and sub-regional regulatory regimes have evolved in stages over the last 20 plus years - with considerable inputs from FFA - as member countries' fisheries expertise, information technology advances and collective vision have permitted.

But for member countries to maintain and enhance the level benefits they can derive from their respective fisheries on a sustainable basis, they also need to ensure that that distant water fishing nations' (DWFN) fishers have powerful economic incentives to harvest fish in their EEZs in ways that are both *biologically and commercially sustainable*. It is unrealistic for member country to expect the monitoring and enforcement functions of their fisheries regulations *alone* to encourage biologically and economically sustainable fishing in their EEZs. This is because fisheries access licenses - with the set of property rights they provide to fishers - greatly influence the fishing behaviour of the license holders.⁷ Member countries' apparent primary focus on regulatory means to achieve their fisheries-management and -conservation goals, raises doubts about the extent to which they accept the need for powerful economic incentives that complement regulatory measures rather than counteract or undermine them.

2. Help to Assess Economics of Fisheries

The FFA also *compiles and disseminates* relevant **information** with a focus primarily on the **economic or commercial** aspects of the fisheries, including information on fish prices, catch volumes, transport costs, processing and marketing of fish and fish products. But such information unfortunately includes very little information about the costs and profitability of the

⁷ These issues are discussed in some detail, for example, in a recent ADB-sponsored discussion paper, "On or Beyond the Horizon: A Discussion Paper on Options for Improving Economic Outcomes from the Western and Central Pacific Tuna Fishery"; April 2005.

fishing operations of various DWFNs' in the region, or in other regions⁸. This is a significant, but understandable, gap in the information available to member countries:

- a. *Significance of information gap*: If reliable such information were available to the member countries it would greatly help them to assess both:
 - *Ability to pay*: What level of access fees could the DWFN fleets *afford to pay* for access to particular fisheries within individual members' respective EEZs will depend on its expected costs and profitability of operating there; and
 - *Willingness to pay*: Whether a particular DWFN fleet is willing to pay fully what it could afford to pay is likely to depend critically on its expected costs and profitability of operating in the next best alternative fishing grounds.
- b. *Understandable unavailability of information*: Such information's commercial sensitivity not surprisingly causes fleets to strongly guard its confidentiality, and be unwilling to share it with the various coastal states with whom they seek to negotiate access rights to fish.

If this information were available to FFA member countries it would potentially strengthen their position in negotiating fisheries access agreements, or in assessing the economic feasibility of individual member countries engaging directly in a particular fishery within their own EEZs. But to date the economic information that the FFA has been able to supply is of *relatively limited* help in shedding light on either:

- a. The strength of an individual member country's negotiating position vis-à-vis DWFNs seeking fisheries access agreements; or
- b. The likely economic viability of a member country engaging directly in say commercial fishing within its EEZ and/or in fish processing as a means to extract more value from its fisheries resource.

3. Help to Secure Economic Benefits from Fisheries

For many years **advising** *individual* member countries was a key FFA role, notably to help them:

- a. To formulate suitable national **policies** for managing and conserving the fisheries in their EEZs;
- b. To formulate and negotiate suitable **access licences** to fish in their EEZs; and so
- c. To secure recognition of **sovereign right** to EEZ resources, even if de facto.

Its advice has covered various aspects of these access licenses, including: fees and other terms and conditions of access.⁹ Since the mid-1990s the FFA has ceased advising individual member countries and focused its advisory effort on key issues vital to the region as a whole or, at least to sub-regions.

Bilateral fishery access agreements have been and remain the most common form of licensing arrangement. Bilateral access licence agreements typically: (1) run for a 1-year *term*; (2) are rolled over annually; (3) give licence holders an *option* to operate a maximum number of fishing vessels in the fishery during this term; (4) require licence holders to pay an access fee of about 5% of the reported-catch value, and (5) to comply with specified fisheries management terms

⁸ I.e. similar information on operating economics of each fleet in its next best fisheries options.

⁹ For example the minimum terms and conditions of sub-regional arrangements agreed to by a sub-set of member countries.

and conditions. The licences *confer no rights* to harvest stated maximum **total allowable catch** volumes of particular fish species, and *impose no limits* on catch volumes.

Charging **access fees** under a bilateral access agreement has been the main focus of some member countries in seeking to secure a share of benefits from the fisheries in their respective EEZs.¹⁰ For these countries fisheries-access fees have provided a major - but highly variable and uncertain - source of government revenue. Apart from such fees, their other sources of fisheries-related government revenue typically have been small or non-existent. In some cases, governments have incurred sizeable losses through their involvement in fishing ventures that were not commercially viable.

Securing fisheries **access terms and conditions** that entail significant domestic economic activity related directly to the licensed DWFN fishing has been the focus of some other member countries.¹¹ Such activities include basing a DWFN fishing fleet in the licensing country, transshipping fish catches there, employing the country's nationals as crew on DWFN fishing vessels, and supplying or establishing fish processing plants there. If a country can attract such fishing-related domestic activities, it potentially can obtain benefits that are a significant multiple of the catch value (i.e. compared with high-end access-fee rates typically paid by DWFNs). Such countries, therefore, have less need to rely on access fee rates which, as a result, may be relatively lower than for other countries that primarily rely on them.

It is difficult to assess just how effective such individually focused help has been in achieving outcomes that are in the best interests of these countries. This is because other factors have also affected the policies adopted and licences agreed, as well as the outcomes that actually occurred under these policies and license agreements. For example, the *secrecy* and *lack of transparency* that typically applies to fisheries access license agreements - and the processes leading up to them - makes it very difficult to see exactly what has been agreed to and why. This typical reality also enhances opportunities for unscrupulous corrupt behaviour for personal gain at the expense of public benefit. Isolating the impact of individual contributors is very difficult.

But the FFA's role in securing multilateral fisheries arrangements of benefit to the region seems clearer cut. This role is discussed later in this section in relation to both the longstanding *US Multilateral Treaty on Fisheries*, and the recent "*Convention for the Conservation and Management of Highly Migratory Fish Stocks of the Western and Central Pacific Ocean*."

More generally, however, all such access agreements (bilateral or multilateral) that do not allocate fishers **rights** to either a **total allowable catch** or to exert a **total allowable fishing effort** have a downside. They tend to undermine other fisheries management efforts to achieve a biologically and economically sustainable fishery. This is because the absence of a catch or effort limit encourages access licensees to compete with each other to catch as much of the common fish stocks as quickly as possible before the fish move on or are caught by another licensee. This "race to fish" also encourages *over-capitalisation* in terms of fishing vessel numbers and effort. This situation is problematic because it tends:

- a. To undermine the profitability of fishing;

¹⁰ For example, FSM, Kiribati, Nauru and Tuvalu have focused on fisheries access fees as their primary means of securing benefits from their EEZs.

¹¹ For example, Cook Islands, Fiji Islands, Niue, Tonga and Western Samoa have focused on fisheries-access terms and conditions as their primary means of securing benefits from their EEZs.

- b. To add to its riskiness;
- c. To reduce generally the fishers' ability to pay access fees, and
- d. To do nothing to encourage fishers to operate consistently with ensuring the biological and economic sustainability of the fishery.

Practical constraints on member countries' ability to adopt an alternative fisheries-access system that could alleviate such problems have been at least partly responsible to date for preventing the adoption of such alternatives in the region. Another factor is the apparent resistance by at least some major DWFNs to such alternatives.¹²

4. Forum to Discuss Common Issues and Foster Unified Action

Another valuable role of the FFA is providing a **forum** for frank, informed discussion about fisheries issues, between countries with essentially *similar interests* in deriving a "fair" economic return from the fisheries resources in their respective EEZs. The Secretariat typically assesses relevant issues and possible options for resolving them, and advises members of its findings. Such **advice** helps to enable member countries:

- a. *To hold well-informed **discussions*** on key fisheries *issues* and how best to resolve them; and, thereby
- b. *To make well-informed **decisions*** on strategies and specific action to resolve the issues in an acceptable way for member countries collectively.

A particular strength of the FFA is that its membership is the **bond** created by shared interests that helps member countries to act in unity if needed. For example, each member country shares a primary **common goal** of *securing a sustainable economic return* from their sovereign right to utilise fisheries resources in their own EEZ.

The strength of this bond exists in no small measure because FFA membership is strictly limited to states *in the region*, most of which are relatively small coastal states or territories! DWFNs who fish in the region are excluded from joining the FFA. Their exclusion enhances the FFA's prospects of achieving **collective unity**, as it avoids a higher degree of conflicting goals that experience elsewhere indicates would otherwise have arisen in the FFA (i.e. between the region's coastal states and DWFNs).¹³ The enhanced prospects of FFA member countries being able to act in solidarity in negotiations with DWFNs on regional fisheries issues, has the potential to offset at least partly the individually weaker positions of countries in the region vis-à-vis the economically more developed and powerful DWFNs.¹⁴

¹² Such DWFN resistance has been apparent with efforts to resolve the form of fishing restraints - and the basis for their allocation - to be applied to the entire WCPO tuna fishery by the newly established *Commission for the Conservation and Management of highly Migratory Fish Stocks in the Western and Central Pacific Ocean*.

¹³ Of course, this does not mean that existing FFA member countries do not also have divergent and sometimes conflicting national goals which they are reluctant to trade-off to take a unified approach on particular issues to achieve expected significant benefits for the region.

¹⁴ But FFA member countries' solidarity in seeking to gain a larger share of the profits from the region's fisheries operations does not reduce their need to be aware of: (1) the likely impact on the economic viability of various fisheries operations; or (2) the advantages of adopting a cooperative approach to dealing risks of .

The FFC's role to **promote** intra-regional **harmonisation** of fisheries management policies - along with *cooperation* in surveillance and enforcement activities, and in relations with DWFNs - further helps to foster unity amongst FFA member countries.

This relatively high degree of collective unity amongst FFA member countries contrasts with the situation of most other regional fisheries bodies whose membership includes both coastal (or marine) states *and* DWFNs. For example, other regional fisheries bodies - like the Indian Ocean Tuna Commission (IOTC), International Commission for the Conservation of Atlantic Tuna (ICCAT) and the Commission for the Conservation of Southern Bluefin Tuna (CCSBT) – all have memberships that comprise a mixture of coastal states and DWFNs (or commercial fishing states).

5. Help to Develop and Coordinate Fisheries Monitoring and Surveillance

The FFA has long played a pivotal role in developing and coordinating measures to encourage DWFNS to comply with their obligations under the applicable fisheries management rules and access agreements when operating in member countries' EEZs. For example, the FFA:

- a. *Spearheaded **development** fisheries management systems* notably: the foreign fishing vessel registration and later vessel monitoring systems (VMS) used in member countries' EEZs;
- b. *Maintains several fisheries-management related **databases*** for member countries to help them with their monitoring, control and surveillance, including:
 - *Regional Register of Foreign Fishing Vessels,*
 - *Fisheries Agreements and Licensing,*
 - *FFA_VMS,*
 - *Violations and Prosecutions* database; and
 - *Fisheries Legislation* of all member countries.
- c. *Acts as a **coordination** point for aerial surveillance* by the air forces of Australia, France and New Zealand, and the US Coast Guard.

6. Help to Train Staff in Various Aspects of Fisheries Management

Since its inception the FFA has provided training to member country staff in a variety of fisheries management areas. For example, it conducts in-country workshops on topical fisheries-management issues, which have included workshops on: the law of the sea and international fisheries law; and training for member-country observers on foreign fishing vessels licensed to operate in their EEZs in the region.

7. Attracting and Channelling Donor Support for Fisheries in the Region

The FFA has served as a useful focal point for individual donor countries and multilateral donor organisations to channel assistance cost-effectively to fisheries activities in the region.

B. Specific Results Achieved Largely Due to FFA Action

The FFA has been pivotal in achieving a number of significant **regional and sub-regional fisheries arrangements** whose outcomes benefit – or are expected to benefit - all members to some extent. The following sub-sections briefly review each of these arrangements which are listed chronologically below:

- a. Nauru Agreement (1982) on uniform minimum terms and conditions of access;
- b. Regional Register of Foreign Fishing Vessels (1984);

- c. US Multilateral Treaty on Fisheries (1987);
- d. Niue Treaty on Cooperation in Fisheries Surveillance & Law Enforcement (1992);
- e. Palau Arrangement (1993);
- f. FSM Arrangement for Regional Fisheries Access (1994);
- g. FFA Vessel Monitoring System; and
- h. Convention for Conservation and Management of Highly Migratory Fish Stocks of the Western and Central Pacific Ocean (2004).

1. Nauru Agreement (1982)

In 1982 a sub-group of 7 member countries (FSM, Kiribati, Marshall Islands, Nauru, Palau, PNG and Tuvalu) agreed to set *harmonised minimum terms and conditions* that foreign fishing vessels *should* meet to obtain access licenses to fish for common fish stocks in their respective Fishery Zones. These minimum terms and conditions covered aspects such as: licensing procedures; rights of authorised law enforcement officers; requirements for reporting catch and maintaining logbooks; reporting requirements and procedures for entering and leaving zones, and for identifying vessels of the 7 member country parties to the agreement.

The FFA assisted this sub-regional group to develop the Nauru Agreement¹⁵ and provides ongoing administrative support to enable them to implement the agreement, monitor its effectiveness and develop and administer supplementary measures from time to time. The Palau Arrangement and FSM Arrangement are two such cases.

By adopting a *uniform* minimum set of access standards the parties aimed to strengthen their positions to negotiate effective bilateral fisheries access agreements (e.g. agreements that are more likely to enhance voluntary compliance by DWFNs). But for many years some major DWFNs strongly resisted accepting these minimum terms and conditions, despite strenuous efforts by some parties to the agreement. Also some other parties to it apparently were reluctant to insist on DWFNs adopting the conditions. But eventually these conditions have become generally accepted.

2. Regional Register of Foreign Fishing Vessels (1984, 1990 and 1993)

In 1984 the FFA created a centralised vessel-reporting system to register foreign fishing vessels licensed to fish in the region. Initially this register was limited to data supplied by PNG and the Solomon Islands on vessels licensed to fish in their EEZs. But over the next 5 or so years it grew into a full **regional register** covering all foreign fishing vessels licensed to fish the EEZs of all member countries.

In 1990, the FFA introduced revised procedures for foreign fleets to provide vessel information for inclusion in the regional register, but unfortunately with a relatively low initial compliance rate. Since then the register's coverage has greatly improved with vessel operators increased compliance with registration requirements. Shortly after the FFA further revised these vessel registration arrangements in late 1993, all fleets had complied with the new arrangements which included payment of an annual administration fee of US\$100 per vessel to cover the costs of maintaining the register.

¹⁵ Its full title is, "*Nauru Agreement Concerning Cooperation in the Management of Fisheries of Common Interest.*"

The register has proved to be an effective **enforcement tool** via member countries' **solidarity** in insisting that foreign fishing vessels must be in "*good standing*" on the register as a minimum condition of being licensed to fish in their respective EEZs:

- a. *Withdrawal of "good standing"*: Any vessel that fails to comply with its access-agreement terms and conditions may have its "good standing" status in the register withdrawn until it complies fully. This effective licensing "ban" remains with the vessel even if it is sold or renamed.
- b. *Information to help assess compliance*: Vessel information from the register can be used together with other information to help assess compliance breaches.

In both these ways the regional register of vessels provides member countries with some **leverage** to help enforce compliance with the conditions.

3. US Multilateral Treaty on Fisheries (1987, 1993 and 2003)

Over the course of some three years the FFA negotiated a multilateral fisheries treaty¹⁶ between the United States and all FFA member countries. This treaty sets the terms and conditions of access for the US purse seine fleet to fish in member countries' EEZs. Its notable features are:

- a. *Guaranteed, sizeable annual payments* to member countries in total for a number of years:
 - Initially US\$12 million per annum for 5 years from June 1988,
 - Then US\$18 million per annum for a further 10 years; and
 - Now US\$21 million for a further 10 years.
- b. *Equal minimum annual payments to each member country, regardless of the volume of fish caught*, being 15% of the balance of the above annual totals after deducting FFA's costs administering the treaty plus a sum exceeding US\$1 million set aside to fund fisheries development projects for member countries.
- c. *Catch-dependent payments to individual member countries* of the remaining 85% of that same annual balance, allocated in proportion to the catch in each member's EEZ as a share of the total catch in all these EEZs.
- d. *A US Government undertaking to enforce the terms and conditions of the treaty* including, for example, good fishing practices.
- e. *Provision for member-state observers on US vessels* to monitor compliance with the treaty; and
- f. *De facto recognition of coastal states sovereign rights* over the resources in their respective EEZs.

Member countries' shares of total payments under this treaty largely reflect the natural distribution of tuna stocks in the region: the vast majority of these stocks are located in countries with EEZs situated mainly between latitudes 10⁰N and 10⁰S. As a result, five such countries (FSM, Kiribati, Nauru, PNG and Tuvalu) have received about 92% of the US\$200 million total catch-related fees paid in the first 16 years of the treaty's operations.¹⁷ But these countries

¹⁶ Its full title is, "*Treaty on Fisheries between the Governments of Certain Pacific Island States and the Government of the United States.*"

¹⁷ Table 1(a)-(d) in Appendix 2, details all payments and/or allocations made under the US Multilateral Fisheries Treaty in the first 16 licensing periods, from 1988/89 to 2003/04.

received only 79% of the US\$276 million total sums paid, or allocated, to members under the treaty.¹⁸ In other words, other members receive 20% of this total.

These features of the treaty, and resultant payments, have benefited member countries in several vital ways, notably by providing:

- a. *A degree of income security for all member countries* by undertaking to pay a fixed minimum sum to each member countries, regardless of actual tuna catch volumes in their respective EEZs.
- b. *Medium-term certainty about the basis of fee payments* to member countries for tuna caught in their respective EEZs.
- c. *Flag-country acceptance of a duty to ensure compliance* with all of the treaty's terms and conditions, plus action effectively implementing this duty.
- d. *A negotiating precedent* for use to encourage other DWFNs to agree to similar multilateral fisheries agreements. But despite this precedent - and concerted efforts to negotiate broadly similar multilateral fisheries arrangements with other major DWFNs - the FFA has yet to succeed in doing so.

4. Niue Treaty on Cooperation in Fisheries Surveillance & Law Enforcement (1992)

The Niue Treaty - which came into force in May 1993 - provides a **framework** for regional cooperation in fisheries surveillance and law enforcement whereby the parties agree to cooperate in matters that include:

- a. *Implementing harmonised minimum terms and conditions of fisheries access* including, for example, *ensuring* that:
 - Only vessels of “good standing” in the Regional Register of Foreign Fishing Vessels are licensed to fish in their EEZs;
 - Vessels licensed report as required by in the standard forms of reporting; and
 - Flag states take responsibility for compliance by vessels under their flag.
- b. *Exchanging relevant information* via the FFA (to the extent legally possible) on such issues as:
 - The location and movement of foreign fishing vessels;
 - Foreign fishing vessel licensing; and
 - Fisheries surveillance and law enforcement activities.
- c. *Fisheries surveillance and law enforcement*: The treaty provides for subsidiary agreements to extend cross-border cooperation in surveillance, and seizure or other enforcement activities.
- d. *Prosecutions*: The treaty also provides for subsidiary agreements or other means to for cooperation in prosecutions (e.g. extradition of persons charged with breaching fisheries laws).

This treaty further reinforces member countries' **resolve** and **ability to monitor and enforce** foreign-fishing vessel compliance with both the fisheries management laws and regulations -

¹⁸ In addition to catch-dependent payments, this cumulative total includes (1) the “15% equal non-catch related payments,” and (2) “development assistance fund” payments and/or allocations.

and terms and conditions of their fishing access licenses – applying to their respective EEZs. The treaty facilitates the option of **sharing** surveillance assets, with the potential to enable *more cost-effective* surveillance and enforcement of fisheries law in the region. The actual costs to the parties to it (Palau, Marshall Islands, FSM and the Australian Defence Force) are dependent on surveillance patrol hours spent under the treaty.¹⁹

5. Palau Arrangement (1993, 1997 and 2003)

In 1993, the parties to the sub-regional Nauru Agreement (1982) signed the *Palau Arrangement for the Management of the Purse Seine Fishery in the Western and Central Pacific* to control the increasing number of purse seine vessels operating in the region. The key features of this arrangement, which came into force in late 1995, are that it:

- a. *Limits total fishing vessel numbers*: The arrangement set a **limit** on the *number* of purse seine fishing vessels that the parties may license in total for a licensing period. This limit was set at the then *existing* total number of such vessels.
- b. *Allocates the total vessel-number limit by fleet*: The arrangement also allocated **by fleet** the limited number of fishing vessels that the parties may license in total in licensing period; and
- c. *Permits temporary reallocation of the total vessel-number limit*: Where the number of vessels actually operating in the sub-region is less than the total limit, the arrangement permits the parties to license extra vessels on a temporary basis to enable the total quota of vessels to operate.

Although the arrangement succeeded quite well over a number of years in limiting vessel numbers in the sub-regional purse seine fishery, it did entail some **problems**.²⁰

- a. *Undue rigidity in allocating vessel limits*: Setting vessel limits *by specific fleets* proved to be too rigid to cope well with: (1) unforeseen changes in the levels of operations of the various fleets in a licensing period; and (2) differences between the parties' levels of fisheries development and the extent of their reliance on access license revenue; and
- b. *Need for a more effective way to limit fish mortality*: The parties began to realise the need for a more effective way to limit fishing mortality, especially in view of doubts about the sustainability of the present level of fishing for bigeye and yellowfin tuna. These doubts reflected concerns raised by the FFA's study of the impact of expanded purse-seine fishing effort in the Western Pacific, which was an important focus of its work.

These concerns eventually led to the arrangement being revised in 2003.

In 1997, meanwhile, the Palau Arrangement parties **reduced by 10%** the **limit** on the total number of DWFN vessels that the parties were prepared to license in their respective EEZs. Their aim was to foster locally-based fishery development: by encouraging DWFNs to set up locally-based operations to utilise the 10% of the limit set aside exclusively for them.

In 2003, the parties decided to replace the limits on vessel numbers by fleet with limits on *purse seine fishing days by EEZ* of each party. To implement this decision, the revised agreement introduced a Vessel Day Scheme with the aim of enhancing the economic and biological sustainability of the western and central Pacific purse seine fishery by:

¹⁹ The Australian Defence Force is involved in the treaty via the Pacific Patrol Boat Programme.

²⁰ OPNAI, Joel L.; "Summary of the Progress of the Work on the Review of the Palau Arrangement", Working Paper to Standing Committee on Tuna and Billfish; July 2002;

- a. Controlling the total **level of fishing effort** by purse seine vessels to allow no more than what is consistent with the *sustainability* of the resource; and
- b. Increasing *economic benefits* to resource-owning countries and *returns* to the owners of participating vessels.

It is too early to judge the actual effectiveness of this revision, although it seems to address the key concerns about the previous vessel-number limit regime.

6. FSM Arrangement for Regional Fisheries Access (1994)

In late 1994, the parties to the Nauru Agreement (1982) created the *FSM Arrangement for Regional Fisheries Access* as a supplementary means to help them to achieve the goals of their original agreement. The key **aims** of the new arrangement included:

- a. *More local participation in their fisheries*: “To promote greater participation by nationals of the Parties in fisheries and assist in the development of national fisheries industries of the Parties;”
- b. *No less favourable access conditions for vessels of the parties*: “To establish a licensing regime under which the fishing vessels of the Parties may gain access to the waters within the Arrangement Area on terms and conditions no less favourable than those granted by the Parties to foreign fishing vessels under bilateral and multilateral access arrangements;”
- c. *Local vessels must be able yield economic benefits to the parties*: “To establish and enforce agreed criteria to ensure that only those fishing operations which are capable of providing genuine and quantifiable economic benefits to the Parties, are eligible for licenses pursuant to this Arrangement;” and
- d. *Local-vessel access conditions must be consistent with Palau Arrangement*: “To allow access to the exclusive economic and fisheries zones of the Parties by *purse seine fishing vessels* on terms and conditions which are consistent with the provisions of the Palau Arrangement for the Management of the Western Pacific Purse Seine Fishery.”

It is unclear how effective this arrangement - along with the Palau Arrangement – has been in encouraging locally based purse seine fishing enterprises in the sub-region. But as noted by Levi (in citing Cartwright).²¹

“A number of island countries have ventured directly into the harvesting sector, acquiring fishing vessels, often with 100% equity, in an understandable desire to obtain greater benefit from their resources. Almost all these ventures have been unsuccessful. Extensive government involvement in what is a highly technical, and at times volatile, industry has been identified as a key factor in the failure of these ventures.”

Some fundamental economic factors presumably have been major contributors to the general lack of success of locally-owned Pacific Island fishing ventures. At issue is whether relatively small-scale, locally-based fishing operations have a *comparative advantage* that enables them to compete with other far larger fishing operations: especially if they have well-developed market outlets.

²¹ LEVI, Noel; “*Tuna Resource in the Pacific: Are Members Reaping the Full Benefits?*” discussion draft, Jan 2003.

In the case of purse seine fishing in particular – operating profitably is not easy even for larger, developed DWFN operations - as vessel and related cannery profits seem to be under pressure globally, as noted by Santen and Muller.²² They see this pressure resulting from two parallel developments: First, “relentless expansion of catches and of canned tuna production have reduced average raw material prices (in real, inflation adjusted terms) over the past 20 years by some 50%.” Secondly, “canned tuna prices have also been affected by the long term declining trend in the prices of the closest competitor foods, chicken and pork.” Despite such pressure, some DWFNs are still investing in new fishing vessels to fish in the region. This suggests that the investors concerned assess the fishery as being profitable for modern fishing vessels, presumably because they are more efficient to operate and, therefore, do not require such a high catch price to break even.

Regardless of how successful the FSM or Palau Arrangements have been in achieving their specific goals, such sub-regional arrangements (along with broader cooperative action by member countries) arguably have *benefited them all* by showing their ability to act in solidarity as a region in dealing with DWFNs. But this benefit has been undermined somewhat by the ongoing tendency for member countries to prefer to negotiate *bilateral arrangements* for DWFN access to fish in their EEZs.

7. FFA Vessel Monitoring System (1998)

During 1995 the FFA began a major project to research, design and implement a satellite-based, real-time vessel monitoring system (VMS). The aim was to ensure that member countries would have timely access to up-to-date, reliable information about fishing activity within their EEZs. At that stage, the FFA and its member countries had to rely on: (1) information in the reports of fisheries observers, which covered only a small portion of licensed DWFN fleets; and (2) occasional aerial surveillance reports, which were close to giving real-time vessel-position information.

In late 1998, the VMS system became operational and is managed by the FFA. The system potentially enables member countries to track vessels active within their EEZs on a real-time basis over large tracts of ocean. In particular, it enables member countries to download on demand - from the FFA hub-site – the latest data on the position, speed and direction of vessels inside their respective EEZs. The availability of such information greatly enhances member countries’ ability to monitor and enforce compliance with their fisheries access conditions.

But to realise this potential requires two key conditions to be met

- a. *Installation and activation of ALCs on vessels:* Operators of DWFN vessels need to have installed and activated a suitable (FFA-approved) type of Automatic Location Communicator (ALC) to keep the FFA’s central hub-site informed via satellite of vessel position data.
- b. *Passage of empowering legislation by member countries:* Member countries need to enact legislation empowering them to require fishing vessels to fit ALC devices and also to keep them activated while within their respective EEZs as a condition of being licensed to fish there.

²² Van Santen, Gert, and Philipp Muller; “*Working Apart or Together: The Case for a Common Approach to Management of Tuna Resources in Exclusive Economic Zones of Pacific Island Countries*”, March 2000. [See p.19ff.]

The FFA maintains a register of fishing vessels of all types that have installed ALC authorised devices and are complying with the FFA_VMS system requirements, and/or agreed to comply. Member countries that have adopted this system require that foreign fishing vessel must be registered in the FFA_VMS Register and have “good standing” in it. The system is funded by an annual registration fee per vessel payable by vessel operators.

The FFA_VMS system’s effectiveness as a monitoring and compliance tool was compromised in the initial years, due to the small number of vessels on the register. This reflected initially strong opposition to it by some major DWFNs. Since then, however, the number of vessels of all types in “good standing” on the register has grown substantially (e.g. from only two in the first year of operation to 671 in 2001, and about 1060 in June 2004).

8. Convention for the Conservation and Management of Highly Migratory Fish Stocks of the Western and Central Pacific Ocean (2003)

All the preceding cooperative actions regarding fisheries, that the FFA has been involved in developing and/or implementing, have covered fisheries *within EEZs* of member countries. But as explained by Van Santen and Muller²³:

*“Concerns about global overfishing trends, the threatened status of one specific tuna stock, and local declines of inshore tuna catches following heavy foreign fishing have created demands for better management of these stocks **in the high seas**. The WCPO is the only remaining high seas ocean area where no comprehensive form of tuna management exists.”*

In December 1994, against this background and after the UN Convention on the Law of the Sea (1982) finally came into force in November 1994, the FFA convened an initial *multilateral high-level conference* (MHLC1) on the South Pacific tuna fisheries. This initiative brought together both key sets of players in the regions fisheries: (1) the coastal-state member countries of the region; and (2) the DWFNs who fish in it. The broad goal of this first conference was to promote responsible fishing operations by fishing vessels operating in the region, including the high seas which are outside the jurisdiction of coastal states but affect fisheries in their EEZs. Cooperation between *both* sets of players is thus vital to secure the future of tuna fisheries in the region as a whole.

Over a 6-year period a series of 6 further such multilateral high-level conferences were held between the WCPO region’s coastal states and DWFNs.²⁴ All of these subsequent conferences were convened and serviced by an independent secretariat. It also prepared discussion papers. Each MHLC conference had particular goals; a focused agenda to try to achieve them; and well-researched discussion papers to inform the participants about the key issues to be considered.

The FFA prepared *confidential supplementary briefing material* solely for FFA member countries, to help strengthen their collective position in negotiating with DWFNs to obtain acceptable conference resolutions on vital issues. This briefing enabled member countries to see tactically how they needed to cooperate to achieve their common goals, even if their individual interests differed significantly regarding some issues. Their common interests still tended to be more closely aligned than with those of DWFNs.

²³ Ibid., page 21 ff.

²⁴ The 1st session of the conference (MHLC1) occurred in Dec 1994, and the 7th (MHLC7) in Aug-Sep 2000.

The 1st session of the conference (MHLC1) in Dec 1994 comprised a general debate on issues relating to creation of a regional mechanism to conserve and manage highly migratory fish stocks. While its participants reached a common understanding on the need for sustainable development of the tuna resources of the western and central Pacific Ocean (WCPO), the main focus was on less contentious technical issues. This set the stage for the next sessions to focus on the harder core issues.²⁵ The 7th session (MHLC7) in Aug-Sep 2000 eventually produced a draft “*Convention on the Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean*” to give effect to a conservation and management regime for tuna in the WCPO region, which had been agreed by all but two participating countries.

The **Convention** came into force on 19 June 2004. It is a significant milestone regional cooperation to manage and conserve the region’s vital, highly migratory tuna stocks on two main counts. First, unlike the region’s other cooperative fisheries-related actions, the Convention is a cooperative initiative developed jointly between coast states and DWFNs, rather than an initiative of the coastal states presented to DWFNs as a *fait accompli*. Second, the Convention encompasses both the high seas and EEZs within the region, potentially enabling a more effective integrated approach to managing and conserving the tuna stocks which migrate naturally between high seas and EEZs.

Important features of the Convention include:

- a. **Principles for conservation & management:** All parties to the convention must comply with some key **principles** for conserving and managing the WCPO fishery in its entirety, including notably:
 - To take steps to ensure the long-term *sustainability* of highly migratory fish stocks in the WCPO, and promote their *optimum use*;
 - To ensure that such steps are based on *sound scientific evidence*, and take into account environmental and economic factors including the *special needs of developing states* (especially developing small island states);
 - To take a *precautionary approach* to fishery management choices, being more cautious the more uncertain is the information basis for the choice;
 - To assess *impacts of fishing* and other human activity on target fish stocks and associated species;
 - To take steps to avoid *over-fishing and excess fishing capacity*;
 - To take account of the *interests of artisanal and subsistence fishers*;
 - To collect and share, in a timely manner, complete and accurate *data* concerning the fishing activities; and
 - To implement and enforce *conservation and management steps* through effective monitoring, control and surveillance.
- b. **Compatibility of conservation and management measures:** The coastal-state parties to the convention have a duty to cooperate to ensure that the *national regimes* for their respective EEZs and the *regional regime* for the high seas within the WCPO are compatible.

²⁵ E.g. how to meet conservation and management duties under international law by balancing sovereign rights to set catch limits in their EEZs against the need to cooperate to ensure the collective catch taken within the EEZs of coastal states and on the high seas is sustainable at an agreed sustainable level.

- c. **Creation of a *Commission to administer the convention***: The convention creates a Commission²⁶ that all parties are a *member* of, and whose key functions include:
- To determine the *total allowable catch* or *level of fishing effort* within the Convention Area for specified highly migratory fish stocks;
 - To promote *cooperation and coordination* between members to ensure the compatibility of conservation and management steps for such fish stocks;
 - To adopt *standards* for collection, verification and timely exchange and reporting of *data* on the fisheries for such fish stocks;
 - To develop *criteria*, where necessary, for *allocating* the total allowable catch, or total level of fishing effort allowed, for such fish stocks;
 - To create suitable *cooperative mechanisms* for effective monitoring, control, surveillance and enforcement (including a vessel monitoring system);
 - To obtain and evaluate economic and other fisheries-related *data and information* relevant to its work; and
 - To promote the *peaceful settlement of disputes*.
 - To decide to adopt *measures* allocating the total allowable catch or the total allowable level of fishing effort, where such decisions are to be made by consensus.
- d. **Enabling the Commission to create a *Secretariat***: The convention enables the Commission to establish a permanent Secretariat headed by an Executive Director, to assist it to carry out its role,
- e. **Funding for the Commission**: The convention provides for the Commission's operations – as approved in an annual budget - to be funded from:
- Assessed contributions which are differentiated to allow for differences in members' ability to pay and share of total catch in the Convention Area;
 - Voluntary contributions; and
 - Other funds.
- f. **Commission to Recognise Special Needs of Developing States**: The convention requires the Commission to fully recognise the special requirements of its developing state parties, including:
- Need to avoid adverse impacts on – and access to - fisheries by subsistence, small-scale and artisanal fishers and fish workers;
 - Need to ensure that its measures do not do not impose “a disproportionate burden of conservation action onto developing States Parties;” and
 - Establishing a “**fund** “to facilitate the *effective participation* of developing States Parties, particularly small-island developing States.”
- g. **Commission to Set its *Budget, Rules and Procedures, and Specific Policies***: The convention provides for the Commission to set some key rules and specific operational policies, including:
- Operating rules and procedures;
 - Financial rules; and
 - Fishing restraints (e.g. total allowable catch or total allowable fishing effort).

²⁶ Its full title is the “*Commission for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean*.”

When the convention was adopted, participants in the MHLC agreed to create a “**Preparatory Conference for the Establishment of the Commission for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean.**” This Preparatory Conference held five sessions between April 2001 and April 2004 to lay the practical basis for establishing the Commission as an operational entity able implement the convention. This groundwork included: (1) developing an organisational structure for the Commission Secretariat; (2) preparing a budget for the Commission’s activities; and (3) developing rules of procedure, and financial rules.

Again with stage, the FFA similarly supported FFA member countries to negotiate agreement on a framework that would help ensure implementation of the Convention in a way that achieves the following **key intermediate outcomes sought** by them from it, notably:

- a. *Legally binding decisions*: The Commission’s decisions are legally binding to allow its conservation and management steps to be effective and enforceable;
- b. *No disproportionate funding burden on small-island developing states*: The basis for setting parties’ contributions to the Commission budget is consistent with their abilities to pay and benefits derived from the fisheries;
- c. *Cost-effective role without prejudice to sovereign rights*: The Commission’s role to be cost-effective and not prejudice the sovereign rights of coastal states;
- d. *No disproportionate burden on developing coastal states*: The Commission’s actions to avoid imposing a disproportionate fisheries management burden on small-island developing states; and
- e. *Effective participation by coastal states enabled*: Developing small-island states can participate effectively in the Commission’s work, through:
 - Provision of sufficient funds to enable their attendance at its key meetings;
 - Provision of sufficient information and advice to enable them to engage in informed debate and decisions on important issues;
 - Avoiding a proliferation of meetings, which effectively could disenfranchise developing small-island states with limited personnel capacity to participate effectively in multiple such meetings; and
 - Setting quorums for Commission’s plenary meetings and meetings of its subordinate bodies, to ensure all parties are adequately represented in the deliberations and decision making of the Commission.

The FFA’s effectiveness in helping its member countries to achieve these desired intermediate outcomes can be judged in part by assessing the extent to which the features of the *convention* - and the structure and operating rules of the *commission* created to implement it – are consistent with the outcomes. The following is a brief summary of the results of this assessment:

- a. The **Convention** clearly recognises that the *developing coastal-state parties* to it - especially developing small-island states - have a series of **special needs** which the Commission must allow for in carrying out its role, to ensure these parties are treated fairly and not disadvantaged;
- b. The **budget-contribution formula** adopted for financing the Commission’s 2005 budget is consistent with the approach supported by the FFA, and seems to allow fairly for

different parties' **abilities to pay** and **benefits from the fisheries**. Each member's contribution to the Commission is calculated broadly as follows:

- *10% base fee*: i.e. 10% of the budget allocated equally between members;
- *20% national wealth component*: i.e. 20% of the budget allocated between members in proportion to each member's 3-year average [gross national income (GNI) plus GNI per capita];
- *70% fish production component*: i.e. 70% of the budget allocated between members in proportion to their share of the 3-year average of total catches in their EEZs and in the high seas within the Convention's jurisdiction.

- c. The **rules of procedure** have set the following **quorum** requirements for the Commission's activities, which should ensure that developing coastal states (especially developing small-island states) are not omitted from its key discussions and decision-making:
 - *Plenary meetings of the Commission* require the presence of "at least three fourths of the members of the Commission;"
 - *Meetings of subsidiary bodies of the Commission* require the same quorum unless such bodies gain its permission to alter the quorum;
 - *Decisions on questions of substance* require at least a by the Commission require: at least a "three-fourths majority of the members present and voting, (where this majority include both: a three-fourths majority of *FFA members* present and voting and present; and (ii) a three-fourths majority of non-*FFA members* present and voting); and
- d. The revised **financial regulations** of the Commission are understood to include **financial support** to help developing coastal states (especially developing small-island states) to participate effectively at meetings of the Commission.

At this stage, with the Commission having existed for only 6 months, it is premature to assess its effectiveness in *implementing* the Convention. But an early major test of its effectiveness will be its pending debate and decisions on proposed vital measures to restrain fishing activity in the entire Convention region.²⁷ The proposed measures aim to achieve biologically and economically sustainable levels of harvesting of the regions key fish stocks via a system of allocating *total allowable catch* quotas or *total allowable fishing-effort* quotas. But coastal state and DWFN parties seem to hold firm opposing views about the proposal. Only time will tell how the different views will be resolved, and what this will mean for conserving and managing the fish stocks.

C. Broader Outcomes Stemming from FFA's Action to Date

Each of the foregoing specific fisheries-related results that member countries have achieved in large measure due to the actions of the FFA (the creation of their regional cooperation) have enabled them to realise major economic and social benefits. Notable broader benefits include:

- a. **Securing and upholding sovereign rights over EEZ**: Regional cooperation exercised in solidarity through the aegis of the FFA was instrumental in securing *early, effective recognition* of their sovereign rights over the respective EEZs. Such recognition was manifest in the US Multilateral Treaty (1987), even though arguably it was only *de facto*. Remember that the UN Convention on the Law of the Sea although introduced in 1982

²⁷ This issue is scheduled for discussion at the Commission's second annual meeting in December 2005 - after having been held over from a number of Preparatory Conference sessions, and the first annual meeting – due to a lack of consensus.

did not come into effect until late 1994! In the interim, other DWFNs gradually came effectively to recognise member countries' EEZ rights.

- b. *Enabling beneficial access agreements to be negotiated*: This effective recognition provided a firm building block for securing fisheries *access agreements* with other DWFNs (including sub-regional arrangements) and the resultant economic and social benefits for member countries, including:
- *Direct fiscal benefits* from **access fees** (or payments) received;
 - *Direct economic and social benefits from domestic industries* developed to **harvest** the catch (e.g. domestic base for a DWFN fleet); **process** the catch (e.g. canneries), **tranship** the catch, or **service** the fleet – where economic benefits comprise the producers' surpluses yielded by activities, and social benefits comprise the net employment created;
 - *Indirect economic and social benefits* - from flow-on activities precipitated by the primary activities – which typically multiply the direct economic and social benefits from the original activities;
 - *Better fisheries management and conservation in their EEZs* achieved via member countries' strengthened ability to secure DWFNs' agreement to minimum terms and conditions of access that help to yield more effective management and conservation of the fish stocks in the EEZs; and
 - *Potentially better fisheries management and conservation in the high seas* of the WCPO adjacent to - or impacting on - fisheries within their EEZs (i.e. through the role of the newly created Commission).

D. Quantitative Indicators of Net Benefits Arising from FFA Action

1. Overview of Quantitative Analysis Issues

The preceding *qualitative assessment* of the FFA's impact on the South Pacific Forum member countries identified its main roles, and assessed what results these have yielded (or contributed to) and how they have benefited member countries.

This section briefly outlines the conceptually correct basis for **measuring** the costs and benefits of regional or sub-regional cooperation between the governments of member countries. It briefly discusses the **information requirements** and practical difficulties of meeting them. The section also discusses the difficulties of reliably *attributing* benefits and costs to a *particular cooperative action* or intervention where it is one of several **joint contributors** to the outcome being assessed. The section then discusses the need to identify the **counterfactual scenario** that most likely would have occurred in the absence of the cooperative action in question. The estimated net benefits from the counterfactual scenario need to be deducted from those arising from the cooperative action in question, to show the latter's actual net contribution to the region's welfare.

Finally, in the absence of sufficient detailed information and resources to conduct a formal cost-benefit analysis, the section then discusses the various indicators of the benefits and costs arising from the FFA's role in the region.

2. Conceptual Basis for Measuring Costs and Benefits

2.1 Inputs Purchased: Value as Opportunity Costs

Public policies or interventions – such as the regional cooperation between member country governments that created the FFA – inevitably use resources that could be used to produce

other goods or services. For example, resources the FFA requires to operate include factor **inputs** such as labour, materials, land and equipment. Because the resources the FFA uses to sustain its operations cannot be used for other purposes, its operations involves **opportunity costs**. In concept, these opportunity costs are equal to the value of the goods and services that the resources would have produced if used in the best alternative way.

In practice, as Boardman et al²⁸ explain, the normal way to measure the value of such resources used is to rely on the direct budget outlay required to purchase them. In some circumstances the direct budget outlay does equate with the conceptually correct measure of opportunity costs, but not in others. The suitability of direct budget outlay data as a measure of opportunity cost - and any adjustments needed to convert it into a suitable measure - depend largely on conditions in the market where the resources are purchased. The situation may be summarised as follows (based on Boardman et al):

- a. *Efficient market for resource with minimal price impact:* Where a resource used in the intervention is purchased from an efficient market and the purchase has minimal impact on its market price, the budget outlay is a suitable measure of its opportunity cost.
- b. *Efficient market for resource but noticeable price impact:* Where a resource used in the intervention is purchased from an efficient market but the purchase affects its market price, this price change needs to be taken into account in calculating the opportunity cost. Typically budget outlays will *overestimate* slightly its opportunity cost in such cases.
- c. *Inefficient market for resource:* Where there is a market failure in the market supplying a resource required for the intervention, budget outlays may substantially overstate or understate the opportunity costs of an intervention. The budget figures would overstate the cost if monopoly rents were being charged, but understate it if prices were heavily subsidised.

In summary, Boardman et al state that

*“The general rule is that opportunity cost equals expenditure less (plus) any increase (decrease) in social surplus occurring in the factor market;”*²⁹

Where the change in “**social surplus**” due to an intervention is defined as the *sum* of: any change in *producers’ surplus* as a result of the intervention,³⁰ *plus* any resultant change in *consumers’ surplus* as a result of the intervention.³¹

An important general point to remember is that opportunity costs relate solely to resources that must be forgone today and tomorrow for an intervention to occur. Resources whose use has already been forgone are **sunk costs** that no longer can be used in alternative uses and so no longer have an opportunity cost.

²⁸ Boardman, A.E., D.H. Greenberg, A.R. Vining & D.L.Weimer; *Cost-Benefit Analysis: Concepts and Practice*; Prentice Hall, 1996; pp. 64ff.

²⁹ Ibid, p.69.

³⁰ “*Producers’ surplus*” is defined as the aggregate total revenue less the aggregate total variable costs of the market supplying a given level of output. Note this concept differs from aggregate profit which equals aggregate total revenue less aggregate total costs (not just total variable costs).

³¹ “*Consumers’ surplus*” is defined as the difference between the aggregate sum consumers actually paid for a given level of good or service less the aggregate sum they would have been willing to pay for the good or service if required.

2.2 Outcomes: Value Costs and Benefits as “willingness to pay”

People’s willingness to pay is the correct conceptual basis for measuring a regional intervention’s outcomes in terms of benefits and/or costs to producers and consumers. Boardman et al defines the **value** of these benefits and costs as follow:

“Benefits are the sums of the maximum amounts that people would be willing to pay to gain the outcomes that they view as desirable; costs are the sums of the maximum amounts that people would be willing to pay to avoid outcomes that they view as undesirable.”³²

In valuing the impact of a regional interventions, analysts need to consider its impact in **primary markets** (i.e. markets that are directly affected by a regional intervention) and **secondary markets** (i.e. markets only indirectly affected), and to distinguish whether such markets are *efficient* and *inefficient*. Based on Boardman et al,³³ the general rules for valuing outcomes in these different markets circumstances are essentially as follows:

- a. *Impacts on efficient primary markets*: Value any benefits or costs arising in an efficient primary market as the direct result of a regional intervention should be valued as the *change in social surplus plus* (less) any *increase* (decrease) in revenue to the governments of the member countries involved and their regional entity.
- b. *Impacts on inefficient primary markets*: If market failures³⁴ or government interventions³⁵ distort product markets affected by a regional intervention, value any benefits or costs similarly except that reliably calculating the social surplus is now more difficult. In principle, some adjustment will need to be made to offset these shortcomings in reflecting willingness to pay.
- c. *Impacts on efficient secondary markets*: If a regional intervention’s impact on primary product markets do not cause a secondary-market price change, the secondary market can be ignored. But if it does result in changes in secondary-market prices, then:
 - If *primary-market* impacts are measured using a demand curve with other prices held constant, then social surplus changes in the secondary market will need to be deducted from those calculated in the primary market to yield the correct impact on the primary market; otherwise
 - If primary market impacts are measured using a demand curve that does not hold other prices constant, the secondary market impacts can be ignored.
- d. *Impacts on inefficient secondary markets*: If a regional intervention’s impact on primary product markets do not cause a secondary-market price change, the secondary market effects can be ignored. But when secondary markets are distorted, its full impact (costs and benefits) cannot be measured solely from effects in primary markets. In principle, this means that impacts on distorted secondary markets should be valued separately, although in practice this may be very difficult to do.

Boardman et al conclude:³⁶

³² Ibid. p.76.

³³ Ibid., see Table 3.1 “Rules for measuring social benefits and costs of government Interventions in markets”, p.93.

³⁴ A market failure exists, for example, where a supplier can obtain monopoly rents in a product market, or where the market price does not reflect the value of an external cost (e.g. pollution) or benefit.

³⁵ A government intervention, for example, could be a subsidy which masks the true willingness to pay for a product.

³⁶ Ibid., p.92.

“The concept of opportunity cost helps us to value the inputs that policies divert from private use; the concept of willingness-to-pay helps us to value policy outputs. The key to valuing outputs is to identify the primary markets in which they occur. When outputs are not traded in organized markets, ingenuity is often needed to infer supply and demand schedules... For this purpose, various shadow pricing techniques ... are often needed. Costs and benefits that occur in undistorted secondary markets are typically very difficult to value, but generally need not, indeed, should not, be added to costs and benefits that are measured in primary markets. Doing so will usually result in double counting.”

A basic point to bear in mind - as noted by Boardman and Hunt³⁷ – is that cost-benefit analyses generally *assume implicitly* that: (1) resources used in a target intervention otherwise would have been used in their most best productive uses; and (2) the target intervention uses (or would use) the resources most productively.

3. Quantitative Indicators of Benefits and Costs from FFA’s Role

3.1 Overview of Indicators of FFA’s Impact

The preceding section assessed in qualitative terms how regional cooperation in the form of the FFA has contributed to the welfare of member countries. In particular it reviewed the FFA’s main outputs and briefly assessed their effectiveness in terms of delivering benefits for member countries. This section presents some quantitative **indicators** of the benefits that the FFA has contributed to, although it does not attempt a formal cost-benefit analysis for reasons discussed earlier.

The quantitative indicators presented here include:

- a. *FFA’s actual income and expenditure*: This data measures the total amount of **inputs** that the FFA has used *annually* in providing the *outputs* identified above, which arguably have contributed significantly to enhanced economic and social *outcomes* for members countries. The data also shows their annual **source**, i.e. how much of the total inputs was provided by member countries’ contributions, and how much from other sources notably as aid from non-member countries and also from Australia and New Zealand (the two developed member countries).

While this data does not directly measure the benefits that the region has received from the FFA, it does indicate the level of **opportunity cost** that the region otherwise would have had to incur to produce the outputs that have benefited member countries, notably the developing Pacific Island members.

- b. *US Multilateral Treaty on Fisheries income and costs*: This data shows the various payments or fund allocations made annually under the treaty to each member country since the treaty came into effect. These payments are funded largely by the US Government and partly by the US fishing fleet.

These payments *net* of the costs incurred by the FFA in administering the treaty represent the **direct benefits** member countries have received from the treaty which the FFA was instrumental in negotiating. But they do *not* equate to the value of the FFA’s contribution. To assess the value of its contribution requires also identifying:

- *Other contributors* to the beneficial outcome represented by the treaty payments, and what proportion is attributable to them; and

³⁷ Boardman, A.E. and A.L. Hunt; “*Review of Methodologies for Estimating the Welfare Impacts of Corporatisation and Privatisation*”, Auckland Uniservices Ltd; May 1997; p.36.

- *The counterfactual scenario* that otherwise is most likely to have occurred if the FFA had not been created, and what benefits it would have yielded.

The proportion of the benefit attributable to these two factors needs to be deducted from the total net payments (i.e. net benefits) to show what portion of it *may be* attributable to the FFA's role. In practice, resolving these two factors reliably is very difficult, and essentially is largely a matter of judgement.

- c. *US Multilateral Treaty on Fisheries catch volumes*: This data shows the annual **volume** of the fish catch reported by the US purse seine fishing vessels operating under the treaty. It provides a basis for seeing the treaty's benefits in perspective by country - and in aggregate - in relation to the US fleet catch and the total catch volume in their EEZs.
- d. *Estimates fisheries contribution to GDP*: Estimates of fisheries' contribution (direct and indirect) to GDP of member countries indicate their overall economic and social importance, and how it varies widely between countries in the region.

These figures show fisheries' estimated total contribution to GDP by country, and distinguish between contributions of (1) large-scale commercial fisheries, (2) small-scale commercial fisheries, and (3) subsistence fisheries. The first category is indicative of the value of wider benefits generated by the tuna fisheries although the figures exclude fish-processing's contribution to GDP.

But the total value of benefits represented by these figures begs the question of: To what extent are they attributable to the FFA's role. The answer remains a matter of judgement and conjecture, as:

- *Other factors*³⁸ have also helped to create this value; and
- *The counterfactual* is difficult to determine with any reliability.

Even so, it may be argued that the FFA outputs over the years have played a major part in ensuring that the tuna fisheries in their EEZs have remained in tact sufficiently to enable them still to *obtain* such benefits, or at least have the *option* to do so.³⁹

- e. *Estimates of fisheries access fee payments*: Limited data publicly available showing (or estimating) fisheries access-fee payments by member countries is another indicator of one of the significant **benefits** that they have derived from the tuna fisheries.

The figures show wide variations in the distribution of such benefits amongst member countries, due primarily to the highly uneven biological distribution of tuna fish stocks amongst them, and also to the degree to which some member countries have relied more on other ways to extract value from the fisheries. But again, these figures shed no light on the FFA's probable contribution to creating this value. That remains illusive and speculative.

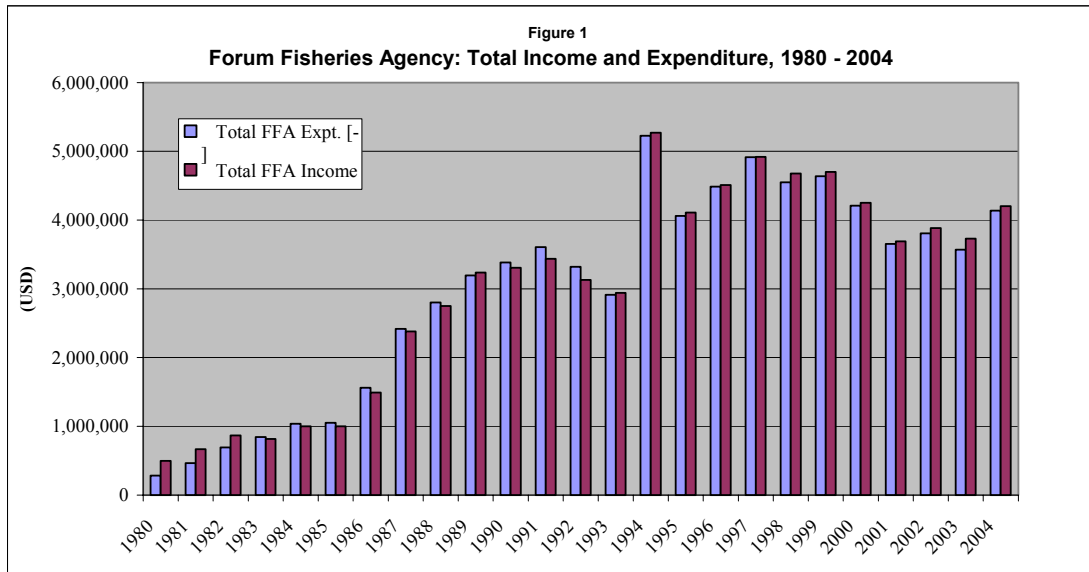
³⁸ For example, one such *other* contributing factor is the Secretariat of the Pacific Community (SPC), which is another manifestation of Pacific regional cooperation. This important regional body (whose membership includes South Pacific Forum member countries but is wider) has undertaken vital research into tuna fisheries amongst others, which has provided a sound scientific basis for the FFA to recommend appropriate tuna fisheries conservation and management strategies for member countries.

³⁹ For example, FFA roles contributing to these benefits (as discussed in the previous section) include: (1) advising member countries on fisheries access issues, including minimum terms and conditions which help safeguard the fisheries; and (2) developing and administering (a) the Regional Register of fishing vessels, (b) the FFA_VMS system, (c) FMA_VMS Register, and (d) coordinating fisheries surveillance help from several developed countries.

- f. *Growth in catch levels from the key tuna fisheries in the region:* This data provides a historical perspective on the other tuna catch figures which represent only part of the total picture. But it provides no information about the contribution of the FFA to the benefits member countries derive from these fisheries.

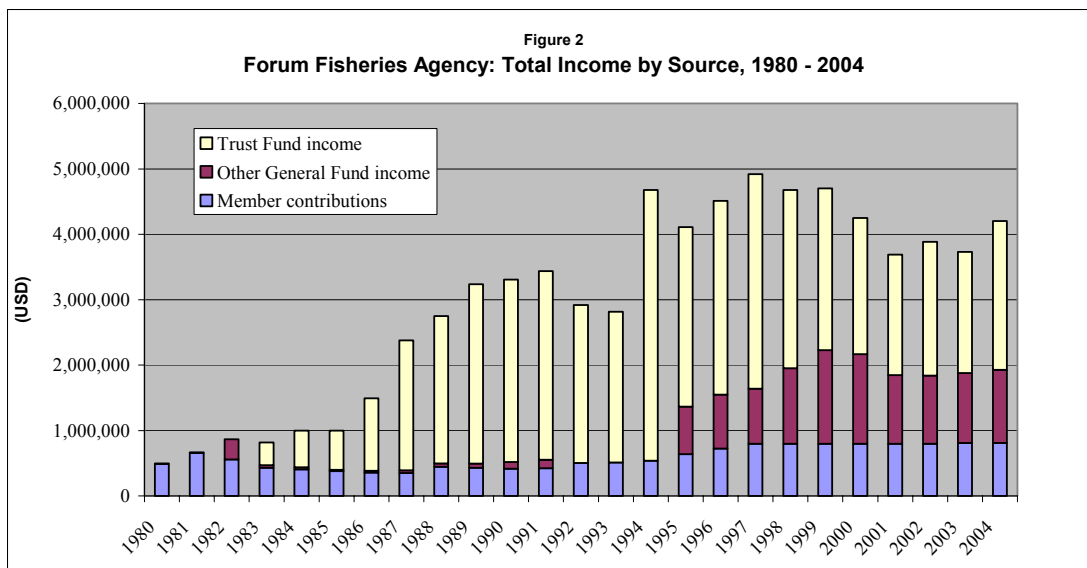
3.2 FFA Actual Income and Expenditure

Figure 1 below shows graphically the FFA’s total income and expenditure annually over the first 25 years of its operations. The **total expenditure** indicates the cost of *inputs* the FFA has used in providing outputs to benefit of member countries.



This figure shows the marked growth in the level of activity to a high point in 1995, judging by the level of input costs, easing to a slightly lower trend level since then. **Total expenditure** on FFA inputs over the entire 25-year period to 2004 was about **US\$75 million**, as shown in *Table 1* below (which summarises its actual income and expenditure figures for this period).

Figure 2 below depicts the main sources of the FFA’s total income in 1980-2004. It shows that *members’ contributions* accounted for a small proportion of total income.



The FFA's Trust Fund Account – which is funded largely by development assistance moneys from individual donor countries (including Australia and New Zealand as the two most developed member countries, as well as non-member developed countries) and international agencies.

Table 2 below elaborates this picture. It shows that in the first 25 years of the FFA's operation, **member contributions** totalled **US\$14.2 million** (or 18.9%) of its total income, with **other income sources** providing the remaining **US\$60.7 million** (or 81.1%), mostly as development assistance. This latter figure may be used as a *partial, indirect indicator* of aggregate net benefits to *all* member countries. To fulfil this partial indicator role more accurately, the development assistance provided by Australia and New Zealand would need to be deducted from this total. These figures are not shown separately in the table. But adding back the sum of the Australia and New Zealand FFA contributions to total income from *other sources* provides a partial indicator of *benefits* to **developing member countries, US\$64.6 million**.

Using the figures in this way implicitly assumes that the FFA has used its total income cost-effectively to fulfil its role for the benefit of all member countries.⁴⁰ These figures do not measure the indirect benefits arising from the FFA's activities or deduct any allowance for the value of benefits (direct and indirect) that are member countries may have derived under the most likely counterfactual scenario had the FFA not been created.

3.3 US Multilateral Treaty on Fisheries: Net Benefits

Tables 3(a) to 3(d) below show **total payments** made annually to member countries by the US Government and US fishing fleet – under the US Multilateral Treaty on Fisheries - since the treaty came into force in June 1988. The FFA, as administrator of the treaty, deducts its administration costs from the annual sum it receives and allocates the development assistance funds component, *before* calculating the share of the balance which is payable to member countries: i.e. 85% in proportion to catch-volumes, and 15% equally divided irrespective of catches. Tables 3(a) to 3(c) show these three components separately.

⁴⁰ The validity of this assumption may be judged in part from the qualitative analysis of the FFA's actions in the preceding section.

Table 3(d) shows the total payments and allowance paid annually under the treaty by member country. In particular it shows:

- e. *Total payments*: Over the 16 licensing years 1988/89 to 2003/04 member countries received a total of almost US\$200 million under the treaty;
- f. *Vast majority of payment went to a few countries*: Five countries (FSM, Kiribati, Nauru, PNG and Tuvalu) received 79% of the total payments and allocations in these 16 years. This reflects uneven biological distribution of the catch, and thence the 85% catch-related component shown in Table 3(a).
- g. *Total payments stable but shares vary*: Aggregate total payments to member countries are stable from year to year, but individual shares can vary greatly.
- h. *Payments as % of catch value high and rising*: Total annual payments expressed as a percentage of total landed catch value, are relatively high and rising as catch volumes fall: from about 11% in 1988/89 licensing year, to over 20% currently.

Table 1
South Pacific Forum Fisheries Agency: Summary of Actual Annual Income and Expenditure - 1980 - 2004

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
	(USD)	(USD)	(USD)	(USD)	(USD)	(USD)	(USD)	(USD)	(USD)	(USD)	(USD)	(USD)	(USD)
General Account (GA):													
Member contributions	488,747	658,765	555,994	430,201	406,930	376,542	356,053	351,737	443,095	431,242	415,252	423,965	504,309
Other GA income	7,450	7,115	310,352	38,443	29,338	24,476	27,776	39,859	53,979	62,887	102,088	129,942	0
Total GA Income	496,196	665,880	866,346	468,644	436,268	401,018	383,829	391,596	497,074	494,129	517,340	553,907	714,397
Total GA Exptd. [-]	282,140	461,864	692,821	495,560	464,591	419,285	400,199	404,563	496,537	494,154	526,865	561,100	763,557
GA Surplus/ Deficit(-)	214,056	204,016	173,525	-26,916	-28,323	-18,267	-16,370	-12,967	537	-25	-9,525	-7,193	-49,159
Trust Account :													
Total TA Income				347,742	563,682	597,877	1,107,719	1,988,338	2,251,284	2,741,561	2,789,762	2,882,336	2,414,986
Total TA Expt. [-]				347,719	570,792	630,891	1,158,514	2,012,232	2,303,376	2,698,611	2,857,452	3,045,344	2,555,435
TA Surplus/ Deficit (-)				22	-7,110	-33,014	-50,795	-23,893	-52,092	42,951	-67,691	-163,008	-140,449
Total FFA Account :													
Total FFA Income	496,196	665,880	866,346	816,385	999,950	998,894	1,491,548	2,379,934	2,748,358	3,235,690	3,307,102	3,436,242	3,129,384
Total FFA Expt. [-]	282,140	461,864	692,821	843,279	1,035,383	1,050,176	1,558,713	2,416,794	2,799,913	3,192,765	3,384,317	3,606,444	3,318,992
FFA Surplus/ Deficit (-)	214,056	204,016	173,525	-26,894	-35,433	-51,282	-67,165	-36,860	-51,555	42,926	-77,215	-170,201	-189,609

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	TOTAL
	(USD)	(USD)	(USD)	(USD)	(USD)	(USD)	(USD)	(USD)	(USD)	(USD)	(USD)	(USD)	
General Account (GA):													
Member contributions	510,208	540,416	637,751	726,233	798,899	798,902	798,902	798,900	798,902	798,902	808,292	808,292	14,667,431
Other GA income	0	0	728,246	822,845	840,241	1,152,344	1,429,847	1,370,100	1,048,444	1,040,145	1,068,988	1,118,130	11,453,035
Total GA Income	633,848	1,230,673	1,365,997	1,549,078	1,639,140	1,951,246	2,228,749	2,169,000	1,847,346	1,839,047	1,877,280	1,926,422	27,144,452
Total GA Exptd. [-]	633,308	1,180,335	1,384,371	1,526,330	1,635,707	1,829,072	2,170,239	2,133,000	1,813,943	1,764,089	1,723,488	1,862,577	26,119,695
GA Surplus/ Deficit(-)	540	50,338	-18,374	22,748	3,433	122,174	58,510	36,000	33,403	74,958	153,792	63,845	1,024,756
Trust Account :													
Total TA Income	2,307,247	4,134,614	2,742,618	2,961,095	3,279,976	2,724,800	2,470,263	2,080,400	1,841,593	2,043,931	1,853,554	2,276,972	48,402,349
Total TA Expt. [-]	2,280,605	4,140,199	2,677,009	3,387,828	3,278,451	2,722,262	2,466,909	2,076,600	1,840,282	2,043,331	1,845,950	2,274,602	49,214,394
TA Surplus/ Deficit (-)	26,642	-5,586	65,609	-426,733	1,525	2,538	3,354	3,800	1,311	600	7,604	2,370	-812,045
Total FFA Account :													
Total FFA Income	2,941,096	5,269,061	4,108,615	4,510,173	4,919,116	4,676,046	4,699,012	4,249,400	3,688,939	3,882,978	3,730,834	4,203,394	75,450,575
Total FFA Expt. [-]	2,913,914	5,225,110	4,061,380	4,485,987	4,914,158	4,551,334	4,637,148	4,209,600	3,654,225	3,807,420	3,569,438	4,137,179	74,810,494
FFA Surplus/ Deficit (-)	27,182	43,951	47,235	24,186	4,958	124,712	61,864	39,800	34,714	75,558	161,396	66,215	640,081

Source: FFA Annual Accounts

Table 2

South Pacific Forum Fisheries Agency: Actual Annual Income less Members' Contributions - 1980 - 2004

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
	(USD)	(USD)	(USD)	(USD)	(USD)	(USD)	(USD)	(USD)	(USD)	(USD)	(USD)	(USD)	(USD)
Total FFA Income	496,196	665,880	866,346	816,385	999,950	998,894	1,491,548	2,379,934	2,748,358	3,235,690	3,307,102	3,436,242	3,129,384
less Developed member contributions	361,672	487,486	411,436	318,348	301,128	278,641	263,479	260,286	327,890	319,119	307,287	313,734	373,188
Net Benefit to developing members	134,524	178,394	454,911	498,037	698,821	720,253	1,228,069	2,119,649	2,420,468	2,916,571	2,999,815	3,122,509	2,756,195
less Developing member contributions	127,074	171,279	144,558	111,852	105,802	97,901	92,574	91,452	115,205	112,123	107,966	110,231	131,120
NET BENEFIT TO ALL MEMBERS	7,450	7,115	310,352	386,185	593,019	622,353	1,135,496	2,028,197	2,305,263	2,804,448	2,891,850	3,012,278	2,625,075

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	TOTAL
	(USD)	(USD)	(USD)	(USD)	(USD)	(USD)	(USD)	(USD)	(USD)	(USD)	(USD)	(USD)	
Total FFA Income	2,941,096	5,269,061	4,108,615	4,510,173	4,919,116	4,676,046	4,699,012	4,249,400	3,688,939	3,882,978	3,730,834	4,203,394	75,450,575
less Developed member contributions	377,554	399,908	471,936	537,412	591,185	591,187	591,187	591,186	591,187	591,187	598,136	598,136	10,853,899
Net Benefit to developing members	2,563,541	4,869,153	3,636,679	3,972,761	4,327,931	4,084,859	4,107,825	3,658,214	3,097,752	3,291,791	3,132,698	3,605,258	64,596,676
less Developing member contributions	132,654	140,508	165,815	188,821	207,714	207,715	207,715	207,714	207,715	207,715	210,156	210,156	3,813,532
NET BENEFIT TO ALL MEMBERS	2,430,887	4,728,645	3,470,864	3,783,940	4,120,217	3,877,144	3,900,110	3,450,500	2,890,037	3,084,076	2,922,542	3,395,102	60,783,144

Source: FFA Annual Accounts

Table 3(a)

US Multilateral Treaty on Fisheries: '85%' Catch-Volume Related Payments to FFA Member States: 1988/89 - 2004/05 Licensing Periods

FFA Member State	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Cum Total	
	88/89	89/90	90/91	91/92	92/93	93/94	94/95	95/96	96/97	97/98	98/99	99/00	00/01	01/02	02/03	03/04	US\$(000)	(% of Total)
	US\$(000)																	
Australia	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	3	0.0%
Cook Islands	0	0	0	0	0	52	7	0	0	23	15	29	58	397	468	0	1,049	0.5%
▶ FSM	6,212	2,054	561	794	959	699	1,253	6,212	591	212	155	7	6	15	954	207	14,704	7.4%
Fiji	46	2	0	3	30	611	74	46	6	0	59	86	444	0	3	69	1,431	0.7%
▶ Kiribati	1,789	6	4,284	5,926	5,461	8,953	6,550	1,789	8,101	8,322	6,263	7,438	8,170	6,476	4,909	6,660	89,309	44.7%
Marshall Islands	1,241	101	1	4	635	173	98	1,241	19	104	138	28	239	8	82	5	2,878	1.4%
▶ Nauru	371	2	531	55	1,979	1,428	102	371	609	724	965	284	78	291	1,469	469	9,357	4.7%
NZ (excl. Tokelau)	0	0	14	0	0	0	0	0	0	52	90	400	0	0	0	58	615	0.3%
Tokelau	0	175	3	840	1	557	17	0	8	197	343	549	506	809	24	244	4,275	2.1%
Niue	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	3	0.0%
▶ PNG	4,320	8,004	4,192	842	460	1,306	4,828	4,320	3,067	1,234	1,540	1,719	155	1,911	5,243	1,750	40,666	20.4%
Palau	2	51	946	0	0	0	0	2	0	0	0	2	0	0	0	234	1,237	0.6%
Samoa	0	0	0	0	3	0	0	0	0	0	38	28	5	4	12	0	90	0.0%
Solomon Islands	275	16	6	89	0	69	231	275	99	165	117	87	80	6	474	2,048	3,763	1.9%
Tonga	0	0	0	0	0	0	0	0	0	0	4	0	4	0	0	0	8	0.0%
▶ Tuvalu	514	1	259	1,676	180	400	1,294	514	2,235	3,569	4,826	4,011	4,992	3,797	246	2,223	30,222	15.1%
Vanuatu	2	0	0	0	0	0	0	2	0	12	0	36	0	8	0	59	117	0.1%
TOTAL	14,773	10,411	10,796	10,228	9,708	14,249	14,458	14,773	14,736	14,611	14,557	14,704	14,738	13,722	13,882	14,027	199,726	100.0%

¹ In LPs 1-5 there were 2 funds, *Economic Development Fund* and *Technical Assistance Fund*, with total allocations of US\$1 million and US\$0.25 million, respectively. From LP_6 they were superseded by one *Project Development Fund*.

Table 3(b)

US Multilateral Treaty on Fisheries: '15%' Equal Payments to FFA Member States: 1988/89 - 2004/05 Licensing Periods

FFA Member State	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Cum Total	
	88/89	89/90	90/91	91/92	92/93	93/94	94/95	95/96	96/97	97/98	98/99	99/00	00/01	01/02	02/03	03/04	US\$(000)	(% of Total)
	US\$(000)																	
Australia	134	111	109	113	107	149	148	150	150	149	148	149	148	148	147	147	2,354	6.3%
Cook Islands	134	111	109	113	107	149	148	150	150	149	148	149	148	148	147	147	2,354	6.3%
FSM	134	111	109	113	107	149	148	150	150	149	148	149	148	148	147	147	2,354	6.3%
Fiji	134	111	109	113	107	149	148	150	150	149	148	149	148	148	147	147	2,354	6.3%
Kiribati	134	111	109	113	107	149	148	150	150	149	148	149	148	148	147	147	2,354	6.3%
Marshall Islands	134	111	109	113	107	149	148	150	150	149	148	149	148	148	147	147	2,354	6.3%
Nauru	134	111	109	113	107	149	148	150	150	149	148	149	148	148	147	147	2,354	6.3%
NZ (excl. Tokelau)	67	111	109	113	107	149	148	150	150	149	148	149	148	148	147	147	2,287	6.1%
Tokelau (?)																		0.0%
Niue	134	111	109	113	107	149	148	150	150	149	148	149	148	148	147	147	2,354	6.3%
PNG	134	111	109	113	107	149	148	150	150	149	148	149	148	148	147	147	2,354	6.3%
Palau	134	111	109	113	107	149	148	150	150	149	148	149	148	148	147	147	2,354	6.3%
Samoa	90	111	109	113	107	149	148	150	150	149	148	149	148	148	147	147	2,309	6.2%
Solomon Islands	134	111	109	113	107	149	148	150	150	149	148	149	148	148	147	147	2,354	6.3%
Tonga	0	101	109	113	107	149	148	150	150	149	148	149	148	148	147	147	2,210	5.9%
Tuvalu	134	111	109	113	107	149	148	150	150	149	148	149	148	148	147	147	2,354	6.3%
Vanuatu	11	111	109	113	107	149	148	150	150	149	148	149	148	148	147	147	2,231	6.0%
TOTAL	1,782	1,761	1,748	1,805	1,713	2,382	2,362	2,397	2,396	2,378	2,375	2,379	2,370	2,363	2,357	2,358	37,283	100.0%

Table 3(c)

US Multilateral Treaty on Fisheries: Develop^t Assistance Funds Allocated to FFA Member States: 1988/89 - 2004/05 Licensing Periods¹

FFA Member State	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Cum Total	
	88/89	89/90	90/91	91/92	92/93	93/94	94/95	95/96	96/97	97/98	98/99	99/00	00/01	01/02	02/03	03/04	US\$(000)	(% of Total)
	US\$(000)																	
Australia	0	0	0	0	0	0	0	111	111	111	111	111	111	111	111	111	1,000	3.8%
Cook Islands	105	90	88	89	86	119	119	111	111	111	111	111	111	111	111	111	1,696	6.4%
FSM	106	88	91	85	85	119	119	111	111	111	111	111	111	111	111	111	1,693	6.4%
Fiji	107	102	92	89	85	119	119	111	111	111	111	111	111	111	111	111	1,711	6.5%
Kiribati	109	99	93	89	88	119	119	111	111	111	111	111	111	111	111	111	1,714	6.5%
Marshall Islands	108	93	92	88	86	119	119	111	111	111	111	111	111	111	111	111	1,703	6.4%
Nauru	122	108	100	96	92	119	119	111	111	111	111	111	111	111	111	111	1,755	6.6%
NZ (excl. Tokelau)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
Tokelau (?)	65	94	89	89	85	119	119	111	111	111	111	111	111	111	111	111	1,659	6.3%
Niue	109	97	91	87	85	119	119	111	111	111	111	111	111	111	111	111	1,706	6.5%
PNG	113	101	90	87	85	119	119	111	111	111	111	111	111	111	111	111	1,713	6.5%
Palau	131	104	92	87	86	119	119	111	111	111	111	111	111	111	111	111	1,738	6.6%
Samoa	112	92	95	95	89	119	119	111	111	111	111	111	111	111	111	111	1,721	6.5%
Solomon Islands	20	99	94	90	86	119	119	111	111	111	111	111	111	111	111	111	1,627	6.2%
Tonga	108	100	91	85	85	119	119	111	111	111	111	111	111	111	111	111	1,706	6.5%
Tuvalu	27	96	88	89	90	119	119	111	111	111	111	111	111	111	111	111	1,627	6.2%
Vanuatu	79	91	87	85	88	119	119	111	111	111	111	111	111	111	111	111	1,666	6.3%
TOTAL	1,420	1,454	1,373	1,330	1,300	1,778	1,778	1,778	1,778	1,778	1,778	1,778	1,778	1,778	1,778	1,778	26,436	100.0%

¹ Includes allocations in 88/89 to 92/93 from both the Economic Development Fund and Technical Assistance Fund; and thereafter from their successor, the Project Development Fund.

Table 3(d)

US Multilateral Treaty on Fisheries: Total Payments and Allocations to FFA Member States: 1988/89 - 2003/04 Licensing Periods

FFA Member State	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Cum Total	
	88/89	89/90	90/91	91/92	92/93	93/94	94/95	95/96	96/97	97/98	98/99	99/00	00/01	01/02	02/03	03/04	US\$(000)	(% of Total)
Australia	134	111	109	113	107	149	151	261	261	260	260	260	259	259	258	258	3,210	1.2%
Cook Islands	239	201	197	202	193	320	273	261	261	283	275	289	317	656	726	258	4,952	1.8%
▶ FSM	6,453	2,253	761	992	1,151	966	1,519	6,473	852	471	414	267	266	274	1,212	466	24,791	9.0%
Fiji	287	214	201	204	222	878	340	307	267	260	318	345	703	259	261	327	5,394	2.0%
▶ Kiribati	2,032	215	4,485	6,128	5,655	9,221	6,816	2,050	8,362	8,582	6,522	7,698	8,430	6,735	5,168	6,919	95,019	34.5%
Marshall Islands	1,483	304	203	204	828	441	365	1,502	280	363	397	288	498	267	341	263	8,028	2.9%
▶ Nauru	627	221	740	264	2,178	1,696	368	632	870	983	1,225	543	337	550	1,727	728	13,689	5.0%
NZ (excl. Tokelau)	67	111	123	113	107	149	148	150	150	201	239	549	148	148	147	206	2,754	1.0%
Tokelau	65	269	92	929	87	675	136	111	119	308	454	660	617	920	135	355	5,933	2.2%
Niue	243	208	200	200	192	267	266	261	261	260	263	260	259	259	258	258	3,916	1.4%
▶ PNG	4,568	8,216	4,391	1,042	652	1,573	5,094	4,581	3,328	1,493	1,800	1,979	414	2,169	5,501	2,009	48,810	17.7%
Palau	268	266	1,148	200	193	267	266	263	261	260	260	262	259	259	258	493	5,183	1.9%
Samoa	202	203	204	208	199	267	266	261	261	260	298	288	265	262	270	258	3,973	1.4%
Solomon Islands	430	226	210	291	194	337	497	536	359	424	377	347	339	265	732	2,307	7,871	2.9%
Tonga	108	202	200	198	192	267	266	261	261	260	263	260	263	259	258	258	3,776	1.4%
▶ Tuvalu	676	207	456	1,878	377	667	1,561	775	2,496	3,828	5,085	4,270	5,252	4,056	504	2,481	34,570	12.5%
Vanuatu	93	201	196	197	195	267	266	263	261	272	260	295	259	267	258	317	3,868	1.4%
TOTAL	17,976	13,627	13,917	13,363	12,720	18,409	18,598	18,949	18,909	18,767	18,710	18,861	18,886	17,863	18,017	18,163	275,736	100.0%

¹ In LPs 1-5 there were 2 funds, *Economic Development Fund* and *Technical Assistance Fund*, with total allocations of US\$1 million and US\$0.25 million, respectively. From LP_6 they were superseded by one *Project Development Fund*.

Table 4

US MULTILATERAL FISHERIES TREATY CATCH VOLUMES BY FFA MEMBER STATES: 1988/89 - 2004/05 LICENSING PERIOD

FFA Member State	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Cum Total	
	1988/89	1989/90	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	(mt)	(% of Total)
Australia	0	0	0	0	0	0	34	0	0	0	0	0	0	0	0	0	34	0.0%
Cook Islands	0	0	0	0	0	589	77	0	0	139	124	220	328	3,047	2,323	0	6,848	0.3%
▶ F. States of Micronesia	24,670	14,081	8,386	15,054	18,109	7,863	13,560	50,512	4,546	1,293	1,249	57	36	117	4,736	768	165,038	8.3%
Fiji	25	0	0	56	560	6,871	796	374	45	0	474	652	2,506	0	14	256	12,627	0.6%
▶ Kiribati	70	33,478	64,060	112,362	103,084	100,709	70,897	14,546	62,309	50,874	50,537	56,645	46,110	49,690	24,384	24,701	864,454	43.6%
Marshall Islands	1,209	3,014	20	69	11,994	1,950	1,066	10,091	149	633	1,110	217	1,346	63	408	18	33,357	1.7%
Nauru	25	10,639	7,942	1,036	37,356	16,065	1,105	3,015	4,687	4,423	7,790	2,160	441	2,234	7,294	1,741	107,953	5.4%
New Zealand	0	0	212	0	0	0	0	0	0	317	728	3,045	0	0	0	217	4,519	0.2%
Tokelau	2,106	2,651	38	15,926	20	6,261	186	0	63	1,203	2,770	4,181	2,857	6,206	120	905	45,492	2.3%
Niue	0	0	0	0	0	0	0	0	0	0	27	0	0	0	0	0	27	0.0%
▶ Papua New Guinea	96,139	76,025	62,691	15,973	8,678	14,687	52,252	35,125	23,589	7,541	12,428	13,091	873	14,660	26,041	6,492	466,285	23.5%
Palau	611	1,454	14,150	0	0	0	0	20	0	0	0	18	0	0	0	869	17,122	0.9%
Samoa	0	0	0	0	50	0	0	0	0	0	308	216	31	27	59	0	691	0.0%
Solomon Islands	189	57	91	1,679	5	780	2,500	2,238	759	1,007	948	662	452	47	2,353	7,597	21,364	1.1%
Tonga	0	0	0	0	0	0	0	0	0	0	29	0	23	0	0	0	52	0.0%
▶ Tuvalu	10	237	3,868	31,775	3,398	4,496	14,010	4,182	17,190	21,815	38,943	30,542	28,175	29,132	1,221	8,244	237,237	12.0%
Vanuatu	0	828	0	0	0	0	0	18	0	73	0	271	0	64	0	217	1,470	0.1%
TOTAL	125,054	142,464	161,458	193,930	183,254	160,271	156,483	120,121	113,334	89,316	117,465	111,977	83,177	105,288	68,954	52,024	1,984,570	100.0%

3.4 Estimates Fisheries Contribution to GDP

Using national accounts data, Gillett and Lightfoot⁴¹ re-estimated the contribution of fishing to GDP in developing Pacific Island countries, notably each FFA member country except Australia and New Zealand. Their estimates are based essentially on data for the year 1999. They also presented corresponding access fee totals for these same countries. Comparing the contribution of tuna fishery-access fees alone, with the wider flow-on contribution of fishing to GDP (even excluding the impact of subsistence fishing) is instructive.

Table 5, which is based on this data, shows very wide differences between these member countries in the overall *level* and *rate of contribution* fishing made to GDP (including subsistence fishing) in 1999. The figures range from a high of 21.5% for Kiribati; to a low of 1.4% for PNG, with an average of 6.98%.⁴²

Table 5
Contribution of Fishing to GDP

FFA Member State	GDP	Fishing contribution to GDP		Date of Data
	(USD)	(USD)	(%)	
Cook Islands	80,400,668	8,667,192	10.78%	2000
FSM	229,842,932	21,950,000	9.55%	1999
Fiji	1,839,178,956	43,404,623	2.36%	1998
Kiribati	54,744,223	11,791,906	21.54%	2000
Marshall Islands	93,662,338	3,606,000	3.85%	1999
Nauru	51,669,628	1,095,396	2.12%	1999
Niue	6,505,070	121,645	1.87%	2000
PNG	3,501,460,437	49,370,592	1.41%	1999
Palau	137,154,851	11,027,250	8.04%	1998
Samoa	230,241,676	15,311,071	6.65%	1999
Solomon Islands	278,810,140	35,687,698	12.80%	1999
Tonga	167,255,056	12,477,227	7.46%	1999
Tuvalu	13,920,011	979,969	7.04%	1998
Vanuatu	230,325,000	5,159,280	2.24%	1999
TOTAL	6,915,170,986	220,649,849	6.98%	

Source: Gillett, R and C. Lightfoot, "The Contribution of Fisheries to Pacific Island Countries", 2001.

3.5 Estimates of Fisheries Access Fee Payments

Table 6 below shows total fisheries access fees received by these developing member countries at two periods in time, 1999 and 2003. As noted by the FFA report from which the table is reproduced:

"The overall level of access revenue appears to have risen by around [12%] in the four years since 1999, from US\$60 million to US\$68 million. As the 2003 figures are probably

⁴¹ GILLETT, Robert and Chris Lightfoot; "The Contribution of Fisheries to the Economies of Pacific Island Countries"; December 2001.

⁴² In the case of PNG, however, this low percentage reflects the fact that despite fishing contributing a sizeable amount in absolute terms, relative to its relatively large economy the proportionate contribution is small.

conservative in their current provisional form, this increase may be greater when final figures have been received. These figures also do not include supplementary payments made under the US Multilateral Fisheries Treaty, nor aid-in-kind associated with several DWFN access agreements. If included, the total value of access would be well above US\$ 70 million in 2003.

Table 6
Tuna Fisheries Access Fee Revenue of Developing Pacific Island Member Countries by Fishery Features: 1999 and 2003

Country	EEZ Area (million km ²)	Latitudinal Range	Historical High Catch (mt)	Access fees 1999		Access fees 2003	
				(US\$ million)	(%)	(US\$ million)	(%)
Category 1 Large very productive EEZ, tropical							
PNG	2.24	2 ⁰ N – 14 ⁰ S	370,000	5.864	9.7	15.712	23.1
FSM	2.78	13 ⁰ N – 1 ⁰ S	250,000	14.118	23.4	11.084	16.3
Solomon Is.	1.34	4 ⁰ S - 15 ⁰ S	120,000	0.273	0.5	1.707	2.5
Kiribati	3.55	9 ⁰ N - 13 ⁰ S	350,000	23.711	39.34	21.374	31.4
Marshall Is.	2.13	15 ⁰ N - 5 ⁰ N	80,000	4.306	7.1	3.322	4.9
Sub-Total				48.272	80.1%	53.199	78.2%
Category 2 Small- medium EEZ, moderately productive, tropical							
Palau	0.63	11 ⁰ N – 2 ⁰ N	20,000	0.901	1.5	0.688	1.0
Nauru	0.32	2 ⁰ N – 2 ⁰ S	100,000	3.425	5.7	4.462	6.6
Tuvalu	0.90	4 ⁰ S – 13 ⁰ S	50,000	5.925	9.8	6.086	9.0
Sub-Total				10.251	17.0%	11.236	16.5%
Category 3 Medium EEZ, moderately productive, sub-tropical							
Vanuatu	0.68	13 ⁰ S – 22 ⁰ S	6,000	0.328	0.5	1.155	1.7
Fiji Islands	1.29	10 ⁰ S – 24 ⁰ S	15,000	0.212	0.4	0.155	0.2
Cook Is.	1.83	7 ⁰ S – 25 ⁰ S	5,000	0.196	0.3	1.442	2.1
Tonga	0.70	14 ⁰ S – 25 ⁰ S	5,000	0.152	0.3	0.247	0.4
Sub-Total				0.888	1.5%	2.999	4.4%
Category 4 Small EEZ, moderately productive, sub-tropical							
Samoa	0.12	12 ⁰ S – 14 ⁰ S	8,000	0.189	0.3	0.200	0.3
Niue	0.39	17 ⁰ S – 22 ⁰ S	3,000	0.177	0.3	0.147	0.2
Tokelau	0.29	7 ⁰ S – 11 ⁰ S	15,000	0.499	0.8	0.216	0.3
Sub-Total				0.865	1.4%	0.563	0.8%
TOTAL				60.277	100%	67.999	100%

Italicised figures are estimated.

Sources: Gillett and Lightfoot, 2001; "The Contribution of Fisheries to Pacific Island Countries", for 1999 figures; and 2003 figures from a Nov. 2004 FFA study, "A Review of Current Access Arrangements in Pacific Developing Member Countries".

3.6 Estimated Rates of Fisheries Access Fee Payments

Disaggregated details of fisheries access fee payments and catch values by fleet and by country are not publicly available, although the FFA maintains a strictly confidential database with such information.

In aggregate, developing member countries' access fees as a percentage of catch value is understood to *average* about 6% to 7%, with variations between different fleets and the basis of setting the fee. Variations occur between member countries depending on the structure of their respective fisheries access agreements, and on the fleets concerned. Typically fleets pay a fee expressed as a fixed percentage of actual catch value based on an agreed price: whereas Japanese fleets have consistently paid a rate of 5%, other DWFN fleets generally pay higher rates according to the FFA.⁴³

It would be misleading to view the corresponding rate for payments under the US Multilateral Fisheries Treaty (over 20%) as indicating a potentially achievable target rate of return from commercially-based fisheries-access agreements. This is because 85% of payments under the treaty are funded by the US Government and only 15% by the US commercial fleet.

It is a moot point whether based solely on commercial criteria access fee rates much beyond 6-8% of the landed value of the catch may be achievable. According to a recent FFA report:⁴⁴

“This ceiling has been the experience in most tuna fisheries, with even 6% seen as a significant if not burdensome “royalty payment” or “resource rental” in most resource sectors. The best placed PDMCs currently achieve a return of between 7 and 8% in some years. Even as competition for available tuna resources continues to increase, there is some evidence that this ceiling is a real one in economic terms, and those PDMCs which have the capacity or potential to do so, would best focus on domestic industry development or shore-based investment as a better prospect for, or an adjunct to, increasing returns from the fishery.”

3.7 FFA's Contribution to Fisheries Access Fee Payments

None of the foregoing quantitative indicators in Tables 3 to Table 6 can tell us the value of net benefits attributable to the actions of the FFA, including its support for various sub-regional arrangements.

In practice, we cannot measure reliably its part in either: the contribution fisheries have made to the GDP of member countries; or the total amount they receive in fisheries access fees individually or collectively. Too many other factors have also contributed to these outcomes for it to be feasible to reliably separate out the individual contributions of the FFA. The value of the FFA's cumulative contribution to-date necessarily remains illusive and speculative. All that can prudently be said about the benefits from its actions is that, in some cases such as negotiation of the US Multilateral Fisheries Treaty, they appear to have played a major role in helping member countries secure sizeable net benefits. Moreover, it may be argued that these actions

⁴³ FFA report, “A Review of Current Access Arrangement in Pacific Developing Member Countries (PDMCs)”; Nov. 2004

⁴⁴ Ibid., p. 7.

also have played a major part in ensuring that the tuna fisheries in their EEZs have remained intact sufficiently to enable them still to *obtain* such benefits, or at least have the *option* to do so.⁴⁵

3.8 The Counterfactual

Reinforcing the foregoing conclusion is the practical reality that it is not realistic to reliably *quantify* the broad counterfactual scenario identified below as the most likely to have occurred in the absence of the FFA.

E. Counterfactual Scenario in Absence of FFA

1. Why Identify the Counterfactual Scenario?

To estimate the impact of any public policy action (target intervention) – whether it has already occurred, is still occurring or is being planned - requires also an estimate of the most plausible **counterfactual scenario**. This counterfactual scenario is the set of events and outcomes that is thought most likely to have occurred, or to occur, in the absence of the target intervention. Identifying the counterfactual scenario, in principle, enables analysts to isolate the actual or likely contribution of a particular target intervention as being **equal to** the net present value (NPV) of:

The estimated total value of net benefits from the *target intervention*; **minus**
the estimated total value of net benefits under the *counterfactual scenario*.

This *difference* in NPV represents the contribution of the target intervention.

Deciding what constitutes the most plausible counterfactual scenario is essentially a matter of judgement, especially in retrospective CBA cases as the challenge is to resolve what most likely would have occurred broadly speaking if the *actual* target intervention had not. By contrast, in reviewing a *proposed* intervention, the “status quo” or existing policy settings usually will be the appropriate counterfactual. While there may be several quite plausible scenarios, each of which could be used to estimate the likely impact of the policy intervention in question, in practice it usually is feasible to select only one as the *base-case* counterfactual scenario.⁴⁶ This certainly is the case with this preliminary retrospective analysis of the FFA’s role.

But this is only the start of resolving the counterfactual scenario. The next challenge is to specify in more detail and *quantify* its likely outcomes, and then to estimate the *value* of their associated stream of benefits and costs.

2. Indian Ocean Tuna Commission as Indicative of Counterfactual Scenario in FFA’s Absence

2.1 Choice of Indian Ocean Tuna Commission as Counterfactual

If the FFA had not been formed in 1977, what sort of *cooperative institutional arrangements* otherwise would have been most likely to have arisen – if any - to address regional fisheries issues? The answer is a matter of judgement (as noted earlier), ideally informed by learning

⁴⁵ For example, FFA roles contributing to these benefits (as discussed in the previous section) include: (1) advising member countries on fisheries access issues, including minimum terms and conditions which help safeguard the fisheries; and (2) developing and administering (a) the Regional Register of fishing vessels, (b) the FFA_VMS system, (c) FMA_VMS Register, and (d) coordinating fisheries surveillance help from several developed countries.

⁴⁶ For example, this is the approach typically used in studies quoted in GALAL, Ahmed et al; *Welfare Consequences of Selling Public Enterprises: An Empirical Analysis*, Oxford University Press, 1994. See for instance pp.164-5.

lessons from the experience of other regions in developing regional fisheries agencies. Unfortunately there is no a priori basis for resolving this issue.

A review of **other regional institutions** that regulate tuna fisheries around the world reveals that they *all* have membership comprising *both* coastal-state countries in the region concerned *and* DWFNs who fish there. Such institutions include:

- a. Inter-American Tropical Tuna Commission (IATTC);
- b. Indian Ocean Tuna Commission (IOTC);
- c. International Commission for the Conservation of Atlantic Tuna (ICCAT);
- d. Commission for the Conservation of Southern Bluefin Tuna (CCSBT); and
- e. Western and Central Pacific Fisheries Commission created in December 2004.

By contrast, **FFA** membership is restricted to coastal-state countries in the region. The FFA clearly is the “*odd man out*” in terms of membership.

Against this background - and recalling that when creation of the FFA was being mooted, its membership almost was open to DWFNs – the most likely **counterfactual scenario** to the FFA’s creation is assumed to be a regional fisheries body whose membership *includes* DWFNs as well as coastal states. In particular, the **IOTC** has been chosen from the above bodies as *indicative* (for this exercise) of the counterfactual scenario in the FFA’s absence. The choice was made with broad support from several professionals - with extensive experience in institutional arrangements for conserving and managing tuna fisheries – who were informally consulted.⁴⁷

2.2 Implications of IOTC as Indicative Counterfactual

Assuming that a regional fisheries body like the IOTC represents the counterfactual scenario arguably means that it would be less effective (than the FFA) in helping to promote and secure the regional-fisheries-related interests of FFA member countries. Experience suggest that the main reason for this being likely to be the case, is that coastal states and DWFNs typically exhibit distinctly different – if not conflicting - views on fisheries issues. Negotiations between the two groups of interests often stall because both parties focus on the outcomes as being a “zero-sum game” where one group gains at the expense of the other.⁴⁸ The inherent divergence of interests between the two groups, therefore, is presumed to slow-up progress in achieving effective cooperative action to conserve and manage fisheries in the region.

But this counterfactual scenario has another downside. Because membership of a fisheries institution such as the IOTC includes both coastal states and DWFNs, this would prevent the developing coastal-state member countries from obtaining the institution’s help in negotiating with the DWFNs in the club. The institution would too easily be conflicted - and end up in an untenable position - if tried to help one group of its members to negotiate an agreement with another group of its members. In effect, at most its role would be limited to an “honest broker” who did not take sides but helped ensured that both parties understood the implications of divergent positions and possible options for resolving them.

⁴⁷ Those consulted in this respect include: Les Clark (a fisheries consultant, and former Deputy Director of FFA); Len Rodwell (Economics Manager, FFA) and Robert Gillette (independent fisheries expert).

⁴⁸ Possible reasons for this are discussed in the previous section in relation to fisheries access agreements.

If both groups had *more or less equal capacities* to negotiate on such issues, then such a role, as required, may make good sense for both parties. But FFA member countries predominantly comprise *developing coastal states* (including many small-island developing states) whose resource capacities in any negotiations are very much less than their wealthier developed DWFN counterparts. They arguably would need technical advice and other support to participate effectively in the operations of a regional fisheries club that includes DWFNs.

Where else would coordinated regional and individual country help for them come from in the absence of a club dedicated solely to the coastal states? Bilateral aid presumably would provide some help, but wide experience suggest that it is difficult to achieve continuity of relationships and in-depth institutional knowledge - and well coordinated help when needed – if relying on bilateral aid mechanisms. If this is the case, the fisheries-related help FFA member countries receive probably would be less effective overall in helping them to achieve their regional, sub-regional or individual country goals. This would result in correspondingly inferior outcomes under the counterfactual scenario (compared with those achieved with FFA help). For example, without dedicated help for the developing coastal-state member countries, they are likely to have been much less well informed or effective in negotiating access arrangements with DWFNs (including minimum terms and conditions).⁴⁹

But reliably quantifying the expected lower overall amount of net benefits for member countries under this scenario is exceedingly difficult and speculative exercise. The following are some possible *manifestations* of the expected lower aggregate net benefits under the counterfactual scenario:

- a. *Lower fisheries access payments*: With a lesser level of effective support, coastal states could be expected to obtain lower access fees than otherwise - and/or lower bilateral aid sums (which sometimes substitute for fees) – as a *direct* result.
- b. *Less sustainable fishing*: Without a paramount focus on coastal-states' interests, the regional fisheries body under the counterfactual scenario would be less effective in pursuing their interests in terms of:
 - Adopting fisheries conservation and management strategies and policies; and
 - Monitoring, surveillance, enforcement activities to encourage compliance with access conditions and with fisheries regulations in EEZs.

Over time this would influence (in part) the fish stock available to fish and catch recorded, which *indirectly* would be reflected in lower fisheries *access payments* and/or lower *economic benefits* from domestic fisheries related activities in some coastal states.

2.3 Specific Features and Achievements of IOTC

A brief review of the track record of the IOTC is instructive.⁵⁰ In 1982 the IOTC began life as the Indo-Pacific Tuna Development and Management Programme (IPTP) in Colombo, Sri Lanka. Its programme initially covered the Indian Ocean and an area extending over the western Pacific, but was later limited to the Indian Ocean. Although the IPTP did not have a fisheries management mandate, its activities included all the other functions of its successor, the IOTC, which inherited its work.

⁴⁹ This applies to both collective negotiations (as a region or sub-region) with DWFNs and bilateral negotiations.

⁵⁰ Information about the IOTC has been sourced primarily from its official web site.

The IOTC website states that:

*“Over the fifteen years of its activity, notable IPTP achievements included the constitution of a **database** covering tuna fisheries in the Indian Ocean... In the process many countries bordering the ocean were assisted in setting up statistical sampling schemes. Many studies were conducted on the biology of the fisheries of tunas... Six Expert Consultations on Indian Ocean tunas and five on western Pacific tunas, as well as a number of workshops were organised. These provided advice to parties fishing for tuna in the area on the status of stocks.”*

The basic role of the IOTC is to *promote* **cooperation** amongst its members to ensure via appropriate management, the conservation and optimal utilisation of stocks covered by its enabling agreement.⁵¹ To this end, its main **functions and duties** are:

- a. *To review stock conditions and collect, analyse and disseminate information:* To keep under review the conditions and trends of the stocks and to gather, analyse and disseminate scientific information, catch and effort statistics and other data relevant to the conservation and management of the stocks and fisheries covered by its enacting document.
- b. *To encourage and coordinate research and development activities:* To encourage, recommend and coordinate research and development activities in respect of the stocks and fisheries covered by the Agreement, and such other activities as the Commission may decide appropriate, including activities connected with the transfer of technology, training and enhancement, having due regard to the need to ensure the *equitable participation* of Members ... in the fisheries and the special interests and needs of Members in the region that are **developing countries**.
- c. *To adopt conservation and management measures:* To adopt, on the basis of scientific evidence, conservation and management measures to ensure the conservation of the stocks covered by the Agreement and to promote the objective of optimum utilisation throughout the area.
- d. *To review economic and social aspects:* To keep under review the economic and social aspects of the fisheries based on the stocks covered by the Agreement bearing in mind, in particular, the interests of **developing coastal states**.

A review of the IOTC **resolutions** (up to and including 2003) shows that its major focus is on recommending rules for the management of the fisheries within its mandate, and with ensuring that its member states – and cooperating non-member states – provide appropriate, timely statistical information to allow the state of the fishery to be scientifically assessed.

While the IOTC can impose conservation and management measures on its members, with a two-thirds majority vote, a formal *objection* process enables members to opt out from being bound by the measures.

Primary funding for the IOTC's operations is member contributions. These are differentiated via formula that partly reflects a member's *ability to pay*, and partly reflects a *user-pay* principle based on a member's 3-year average catch data:

- a. *10% equal base fee:* 10% of the total budget is shared equally by members;

⁵¹ The Agreement for the on 27 March 1996. *Establishment of the Indian Ocean Tuna Commission* which entered into force

- b. *10% equal for fishers*: 10% of the total budget is shared equally by members with fishing operations in the area targeting species covered by the IOTC;
- c. *40% weighted GDP-per-capita basis*: 40% of the total budget is allocated among members by weighting each member's raw GDP-per-capita proportions, according to progressively increasing weights (0, 2, and 8) corresponding to low-, medium-, or high-economic status. The result is that low-income members do *not* pay this contribution element.
- d. *40% proportionate to catch*: 40% of the total budget is allocated among members in proportion to a 3-year average catch.

While this budget formula is consistent with not discouraging developing coastal states to participate in the IOTC's work, there were no readily apparent evidence of measures to enable them to do so effectively (e.g. via financial support, technical assistance and capacity building).

Another notable absence, - expected, of course, given the composition of the IOTC's membership – is any provision of advice that would help to enable developing coastal states to stand up for their rights in – individually or collectively – in negotiating access arrangements or economic joint ventures with their developed DWFN counterparts!

This preliminary review reaffirms the foregoing assessment of the counterfactual scenario in the absence of the FFA.

IV. CONCLUSIONS

In 1997, members of the South Pacific Forum decided to *cooperate* to create a regional fisheries agency, the South Pacific Forum Fisheries Agency (FFA) to serve them. Their foresight has been repaid many-fold. Over the 25 years since coming into effect in 1979, the FFA has played a pivotal role in *helping* member countries to secure and uphold sovereign rights over their respective EEZs; to negotiate beneficial tuna fisheries access agreements; to develop and negotiate conservation and management regimes for the tuna fisheries in their EEZs; to monitor and enforce compliance with access agreements and fisheries regulations and, more recently, to negotiate the creation of a new international body to promote and coordinate cooperation aimed at ensuring the highly migratory tuna stock in their EEZs and adjacent high seas are managed on a biologically and economically sustainable basis.

Some of its outputs have been focused on the individual needs of member countries, while others have involved the collective needs of all members or subgroups of them. For example, with expert help from the FFA, member countries have cooperated to create and operate a series of sub-regional fisheries arrangements tailored to suit the needs and aspirations of particular subsets of member countries.

Underlying the FFA's success in helping member countries to obtain such results are four key features of this regional cooperation. First, pooling scarce resources and coordinating their use has yielded obvious *economies of scale and scope* for member countries. This has enabled them to obtain a cost-effective dedicated supply of expertise, information, analysis, advice and support for fisheries issues which for many otherwise may not have been available. Second, FFA's expert support has helped to member countries (all but two of whom are developing island states) to redress their negotiating imbalance vis-à-vis largely developed, wealthy DWFNs. Finally, creating a regional body focused exclusively on the interests of coastal states in the region has reduced the degree of internal conflicts of interests within the organisation. As

a result the FFA seems to have been more able *internally* to resolve issues and *externally* to take a united stand on in dealing with other parties such as DWFNs.

But, of course some conflicts of interest inevitably do arise between member countries for a variety of normal reasons. Wide differences in the shares of costs and benefits from regional or sub-regional cooperation typically cause conflict between the parties and ultimately can undermine its likelihood of success. The more each of the parties to an actual or potential regional cooperative activity share *both* common goals *and* a similar level of net benefits, the more likely the cooperation is likely to succeed.

Finally, despite the catalogue of qualitative benefits arising directly or indirectly from the FFA's activities, it is not feasible to quantify reliably the value of net benefits attributable to its actions. Too many other factors have also contributed to these outcomes for it to be feasible to reliably separate out the individual contributions of the FFA. Moreover, it is not feasible to quantify reliable the net benefits that otherwise are likely to have arisen under the most counterfactual scenario if the FFA had not been created. All that can prudently be said is that its actions appear to have played a major role in helping member countries secure sizeable net benefits from their fisheries.

APPENDIX: KEY EVENTS IN LIFE OF SOUTH PACIFIC FORUM FISHERIES AGENCY

DATE	EVENT	REF.
1979 (Aug)	South Pacific Forum Fisheries Agency (“FFA”) <u>created</u> formally by international convention of South Pacific Forum “Member States”.	1.
1982 (Dec)	United Nations Convention on the Law of the Sea <u>adopted</u> , recognizing coastal states’ rights to bordering seas, i.e. exclusive economic zones (“EEZs”) Nauru Agreement Concerning Cooperation in the Management of Fisheries of Common Interest <u>came into force</u> to help the 8 <u>sub-regional</u> parties to adopt a coordinated approach to foreign fishing vessels in their fishing zones.	2. 3.
1984 (Jun)	Arrest of US purse seine vessel “Jeanette Diana” by Solomon Islands Govt. led to a flurry of action culminating in 1988 US Multilateral Treaty on Fisheries.	4.
1984	Creation of centralised vessel reporting system , based initially only on data from PNG and Solomon Is re: fishing vessels operating in their EEZs.	5.
1985 (Feb)	Legal consultations held in Suva to consider how to enable Pacific Forum States to exercise more effective legal jurisdiction over fisheries in their EEZs.	6.
1985	Creation of regional fisheries surveillance programme.	7.
1988 (Jun)	US Multilateral Treaty on Fisheries <u>came into force</u> on 15 June 1988, with a fee of US\$12 million payable annually.	8.
1989	Harmonised minimum terms and conditions of access (“MTCs”) <u>adopted</u> for fisheries within member states’ respective EEZs.	9.
1990	Distant water fishing nations (“DWFNs”) <u>oppose</u> minimum terms and conditions of fisheries access demanded by Member States in negotiations. Serious FFA-funding difficulties <u>came to a head</u> as 85% of cost of FFA work program now met from extra-budgetary sources, and only 15% from members’ contributions, raising donor questions about members’ commitment to FFA. The real purchasing power of member contributions to FFA has been reducing.	10. 11.
1990 (Sep)	Revised procedures for Regional Register of vessels <u>implemented</u> , but with a very low compliance rate.	12.
1990 (Nov)	4th observer training course <u>held</u> to enable member states to supply on-board observers to monitor compliance under the US Multilateral Fisheries Treaty.	13.
1991 (Jul)	DWFNs <u>cease</u> operating driftnet fishing vessels after sustained pressure from member states supported by FFA.	14.
1992 (May)	1st 10-year extension to US Multilateral Treaty on Fisheries <u>agreed</u> by parties. FAO <u>asked</u> to draft International Code on Responsible Fishing by international conference on responsible fishing.	15. 16.
1992 (Jul)	Niue Treaty on Cooperation in Fisheries Surveillance & Law <u>signed</u> creating a valuable means to enhance regional monitoring, control and surveillance.	17.
1992 (Oct)	Arrangement for Management of Western Pacific Purse Seine Fishery <u>adopted</u> by sub-regional parties to 1982 Nauru Agreement to further its goals by harmonising conditions of fishery access licences and allocation priorities.	18.
1992	Increase in illegal fishing by foreign vessels <u>occurred</u> Japan <u>agreed</u> to comply with substance of MTCs in bilateral agreements with Australia, FSM, NZ and Palau, but does not accept regional register of vessels.	19. 20.

DATE	EVENT	REF.
1993	<i>Higher access fees <u>negotiated</u> by several FFA member states (i.e. 5% of value of the catch, up from 4%)</i>	21.
	<i>Ban on transshipment at sea <u>implemented</u>.</i>	22.
	<i>Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas <u>adopted</u> from FAO draft, recognising the impact of high seas fishing on coastal-state EEZs.</i>	23.
1993 (May)	<i>Niue Treaty on Cooperation in Fisheries Surveillance & Law <u>came into force</u>.</i>	24.
	<i>Parties to Nauru Agreement <u>agreed</u> to limit licenses for foreign purse seiners to vessels flagged by a state with a bilateral access agreement.</i>	25.
	<i>Parties to Palau Agreement <u>agreed</u> not to license foreign purse seiners flagged to 'open registries'.</i>	26.
1993 (Jun)	<i>1st 10-year extension to US Multilateral Treaty on Fisheries <u>came into force</u>, with access fees of US\$18 million payable annually.</i>	27.
1993 (Nov)	<i>Palau Arrangement for the Management of the Purse Seine Fishery in the Western and Central Pacific <u>entered into force</u> for Parties to the Nauru Agreement, limiting the number of purse seine vessels that could be licensed.</i>	28.
1994 (Nov)	<i>UN Convention on the Law of the Sea <u>came into force</u>, after being ratified by 1 year earlier the 60th state. (It was adopted in Dec 1982!)</i>	29.
1994 (Dec)	<i>1st Multilateral High Level Conference on South Pacific Tuna Fisheries ("MHLC") <u>convened</u> by FFA (including coastal states and DWFNs) to develop strategies for regulating fishing fleets operating in the Western Central Pacific.</i>	30.
1995 (Aug)	<i>"Agreement for the Implementation of the Provisions of the UNCLOS ... Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks" <u>adopted</u> by UN Conference.</i>	31.
1995 (Sep)	<i>FSM Arrangement for Regional Fisheries Access <u>came into force</u> being in effect an internal multilateral access arrangement between Parties to the Palau Agreement to encourage locally-based purse seine fishing operations.</i>	32.
1995 (Oct)	<i>Code of Conduct for Responsible Fishing <u>adopted</u> by FAO conference, providing a non-mandatory framework for national and international efforts to achieve sustainable fishing regimes.</i>	33.
1996	<i>Changes to FFA's operating arrangements to enhance its focus on fisheries management <u>agreed</u> by its governing body, i.e. creating ongoing Species Working Groups and a Monitoring, Control & Surveillance Working Group.</i>	34.
	<i>US Multilateral Treaty targeted 20% observer coverage <u>achieved</u> for 1st time.</i>	35.
	<i>Taipei, China's albacore tuna longline fleet <u>ceased operating</u> in all but 2 member states (Fiji Islands & Vanuatu), as members did not renew bilateral fishery access agreements to encourage the fleet to accept a "Poly Melon" sub-regional access arrangement.</i>	36.
1996 (Jul)	<i>Technical consultation on collection and exchange of fisheries data, tuna research and stock assessment <u>held</u> in New Caledonia.</i>	37.
1996 (Nov)	<i>Technical consultation on fishing vessel monitoring systems <u>held</u> in Fiji Islands.</i>	38.

DATE	EVENT	REF.
1997 (Mar)	6th FFA/SPC Colloquium <u>held</u> in Vanuatu to coordinate work programmes.	39.
1997 (Apr)	Number of purse seine vessel licences reduced by 10% by parties to the Nauru Agreement as part of the Palau Agreement.	40.
1997 (Jun)	2nd Multilateral High Level Conference <u>convened</u> by FFA to consider means for conserving and managing highly migratory fish in the WCPO.	41.
1997 (Dec)	Intersessional technical consultation <u>held</u> in the Solomon Islands on issues regarding fisheries management.	42.
1988 (Mar)	Intersessional technical consultation <u>held</u> in Fiji Islands on issues relating to monitoring, control and surveillance.	43.
1998 (Jun)	3rd Multilateral High Level Conference <u>convened</u> by FFA to continue its previous focus and start <i>serious negotiations</i> to resolve issues re: creating a body to oversee conservation and management of the WCPO tuna resource. .	44.
▶ 1998	FFA Vessel Monitoring System (“VMS”) <u>became operational</u> to help coastal states to maintain the integrity of their EEZs via monitoring and better controlling access. 2 vessels now on VMS Register	45.
	Regional Register’s effectiveness as a compliance tool <u>undermined</u> by lack of registrations in 1998/99 licensing year	46.
1999 (Feb)	4th Multilateral High Level Conference <u>convened</u> by FFA to continue negotiations between coastal states and DWFNs on conservation and management of WCPO tuna resource.	47.
1999 (Sep)	5th Multilateral High Level Conference <u>convened</u> by FFA to continue negotiations.	48.
1999	Forum Fisheries Committee <u>met</u> 5 times to resolve issues and strategies relating especially to the ongoing work/ negotiations at the MHLCS.	49.
2000 (Apr)	6th Multilateral High Level Conference <u>convened</u> by FFA to continue negotiations.	50.
2000 (Sep)	7th Multilateral High Level Conference <u>convened</u> by FFA to continue negotiations which culminated in the adoption of the convention below.	51.
▶	Convention for the Conservation and Management of Highly Migratory Fish Stocks of the Western and Central Pacific Ocean <u>adopted</u> by the MHLC!	52.
2000 (Oct)	Licensing of Japanese fleet in 2000 <u>suspended</u> by Palau until the vessels installed VMS equipment and registered with the VMS Register.	53.
2000 (Dec)	UN Fish Stocks Agreement <u>entered into force</u>.	54.
2000	International Tribunal on the Law of the Sea role in interpreting LOSC <u>is growing</u> in importance (e.g. its rulings on prompt release of vessels detained). Major DWFNs operating in the region <u>sought lower access fees</u>	55. 56.
	Fisheries Agreement and Licensing database <u>being updated</u> by FFA.	57.
2001	FFA’s VMS Register <u>listed</u> 608 fishing vessels of all types, but only 23% of these are reporting regularly to the system.	58.
	FFA Corporate Plan 2002 – 2005 <u>adopted</u> providing a new “charter” for this planning period.	59.

DATE	EVENT	REF.
2002 (Mar)	<i>2nd 10-year extension of US Multilateral Fisheries Treaty <u>agreed upon</u>.</i>	60.
2002 (Jun)	<i>Data quality assurance project <u>begun</u> to review Regional Register database.</i>	61.
2003	<i>Palau Arrangement (1993) <u>modified</u> by the parties to manage their purse seine fisheries on the basis of a vessel day scheme (VDS) limiting the number of fishing days, instead of the number of fishing vessels as previously.</i>	62.
▶ 2003 (Jun)	<i>2nd 10-year extension to US Multilateral Fishery Treaty <u>came into force</u> from 15 June, with a fee of US\$21 million p.a. payable once ratified by all parties.</i>	63.
▶ 2003 (Dec)	<i>Convention for Conservation and Management of Highly Migratory Fish Stocks of the Western and Central Pacific Ocean <u>ratified</u> by 13th state on 19 December, triggering its coming into force 6 months later!</i>	64.
▶ 2004 (Jun)	<i>Convention for Conservation and Management of Highly Migratory Fish Stocks of the Western and Central Pacific Ocean <u>came into force</u> on 19 June 2004.</i>	65.

REFERENCES

N°	Title	Author and/or Organization	Year
1	Capturing Economic Benefits from Tuna Fisheries	FIAS	2000
2	Foreign Tuna Purse Seining in the Pacific Islands: The Current Situation and Business Opportunities	McCoy, M.A. and R. Gillett [for FFA]	???
3	Working Apart Together: The Case for a Common Approach to Management of the Tuna Resources in Exclusive Economic Zones of Pacific Island Countries (Draft)	van Santen, Gert. and Philipp Muller	2000
4	Albacore Freezer Long-line Fishery: Situation Report and Economic Analysis (Draft)	Lightfoot, Chris. & Chris Friberg [for FFA]	1997
5	Aspects of the Tuna Industry Relevant to Privatization of Enterprises in the Federated States of Micronesia	McCoy, M.A. and R. Gillett [for ADB]	2000
6	Cooperative Approaches to Marine Resource Management in the South Pacific (NCDS, ANU seminar)	Hunt, Colin	1996
7	Tuna Purse Seining Profit Study (exact title=???)	McCoy, M.A. & R. Gillett [for FFA]	???
8	Fisheries and Employment in the Pacific Islands	Gillett, R. [for NDP]	1997
9	Pacific Island Fisheries: Regional and Country Information	Gillett, R. [for FAO]	2002
10	Overview of the Western and Central Pacific Ocean (WCPO) Tuna Fisheries - 2003	Lewis, Antony	???
11	A Survey of Purse Seine Fishing Capacity in the Western and Central Pacific Ocean: 1988 to 2003	Gillett, R. and A. Lewis	2003
12	Tuna Fishery Yearbook 2002	Lawson, T.A. [Pacific Community Secretariat]	2003
13	Tuna Industry Development Study: Regional Report	FFA Report 95/96	1995
14	Regional Overview: Marine Capture Fisheries Management in Small Island Developing States of the Southwest Pacific	Gillett, R.	2002
15	Fresh Tuna Longline Fishery: Likely Profitability and Potential Development Opportunities for Pacific Island Countries	FFA Report 98/1	1998
16	Frozen Sashimi Longline Fishery: Likely Profitability and Potential Development Opportunities for Pacific Island Countries	FFA Report 98/4	1998
17	The World Tuna Industry: an Analysis of Imports, Prices, and of their Combined Impact on Catches and Tuna Fishing Capacity	Catarci, Camillo; ed. [FAO 2004/5]	2004

18	Status of the United States Western Pacific Tuna Purse Seine Fleet and Factors Affecting Its Future	Gillett, R.; M. A. McCoy, and D. G. Itano	2002
19	Domestic Tuna Industry Development in the Pacific Is: Current Situation & Considerations for Future Development Assistance	Gillett, R. [FFA Report 03/01]	2003
20	Contribution of Fisheries to the Economies of Pacific Island Countries	Gillett, R.; and Chris Lightfoot	2001