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Report of the

UNSD/FAO Joint Workshop on Integrated Environmental and Economic Accounting for Fisheries

New York, 14-16 June 1999

ABSTRACT

The workshop reviewed and discussed draft guidelines on integrated environmental and economic accounting for fisheries (SEEAF) and provided guidance for their finalization. It also provided a forum for the sharing of experiences with current fisheries accountings. Furthermore, the workshop identified measures to facilitate future implementation of SEEAF with regard to data collection and compilation, institutional arrangements, pilot projects and external support.

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INTRODUCTION

The UNSD/FAO Joint Workshop on Integrated Environmental and Economic Accounting for Fisheries was held at the United Nations in New York on 14-16 June 1999. It was opened by Ms Eszter Horvath, Officer-in-Charge, Environment, Energy and Industry Statistics Branch, UN Statistics Division and attended by national accounts, statisticians and economists from 14 countries and from Eurostat, FAO, IUCN, New York University, UN Statistics Division and the UN Division for Sustainable Development. The list of participants is given in Appendix B.

The workshop adopted the agenda shown in Appendix A.

WORKSHOP OBJECTIVES

The principal workshop objective was to review and discuss draft guidelines on integrated environmental and economic accounting for fisheries (SEEAF). Other related objectives were to share experiences in the uses, practices and constraints of current fisheries accountings as well as to identify measures which could facilitate future implementation of SEEAF with regard to data collection and compilation, institutional arrangements, pilot projects and external support.

NEED FOR AND USES OF FISHERIES ACCOUNTS

Except for a few countries, the contribution of the fisheries sector to GDP is in general very small and often below one or two percent. It is primarily for this reason that many countries do not presently publish separately fisheries accounts but include them in joint accounts for the agriculture, forestry and fisheries sector. The level of detail is, moreover, often very low and based on rough estimates.

Where fisheries play a very important role in a country's economy, fisheries sector accounts are usually compiled in some detail and published (e.g. Iceland, Maldives, Namibia). For a number of reasons, however, an increasing number of countries where the fisheries sector's share on GDP is small have started to produce fisheries sector accounts or intend to do so within the near future (e.g. Brazil, Chile, Rep. of Korea, Philippines, South Africa). These reasons include the following:

- the importance of fisheries for the economic well-being of certain regions where the sector employs large numbers of persons and generates most or a large share of value added;

- the importance of fisheries in national food production and diet;

- the recent increased international and national public attention given to the problems faced by marine fisheries including serious overfishing, large overcapacities of the fishing fleets, low economic returns, heavy subsidization, and environmental issues related to discarding of by-catches, use of destructive fishing methods, habitat degradation and marine pollution;

- efforts to implement the recommended actions of UNCED Agenda 21 including the compilation of natural resources accounts in physical and monetary terms as envisaged in the System of Integrated Environmental and Economic Accounting (SEEA).

The initiative for the preparation of fisheries sector accounts is usually taken by the agency responsible for national accounting in collaboration with fisheries and other agencies as part of their efforts to produce natural resources accounts. The initial emphasis is often on the preparation of physical accounts.

Fisheries sector accounts provide the basis for various kinds of monitoring and assessment tasks and for modelling in order to:

- estimate the fisheries sector's contribution to national income and its distribution;
- analyse the interaction between the fisheries sector and other sectors of the economy;
- monitor the performance of the fisheries sector and of sub-sectors (e.g. marine capture fisheries; inland capture fisheries; aquaculture);
- improve fisheries management;
- estimate the value of natural assets, in particular commercial fish stocks;
- assess the impact of government sectoral policies such as fisheries subsidies;
- monitor the impacts of macro-economic policies on the fisheries sector such as the influence of economy-wide changes in taxes or interest rates.

Other future uses might include, in particular:

- Accounting for fisheries management costs and habitat protection costs;
- Assessment of production externalities in monetary and physical terms (such as the costs of environmental pollution borne or caused by the fishery);
- Accounting and valuation of fishery resources shared with other countries.

The workshop concluded that for many, or even most countries, the preparation of fisheries sector accounts, preferably SEEAF is highly desirable in view of the above-mentioned uses.

EXPERIENCES WITH CURRENT FISHERIES ACCOUNTS (SNA)

In many countries, the fisheries sector comprises small-scale or artisanal fisheries undertaken in coastal waters or in lakes and rivers as well as large-scale fisheries in offshore waters and on the high seas. The small-scale sub-sector is usually characterised by large numbers of fishermen who employ labour intensive fishing techniques and land their catch all along the coast in small landing places and harbours or directly on the beach. Whilst most of them produce for commercial sale in the market, a share of the catch is usually taken for home consumption (own final use). Moreover, some fishermen operate for subsistence on a part-time basis and derive most of their income from agriculture or other activities.

The data collection and accounting task for the small-scale sector is especially difficult because of the large numbers of operators, their geographical spread and because of inadequate catch records and lack of business accounts in small-scale fisheries. While catch statistics are often produced based on regular sample surveys, price and cost data are often not available, and sample cost and earnings surveys are not undertaken, or at least not on a regular basis.

The data situation for the large-scale industrial sub-sector is generally better but other difficulties often arise. A major difficulty consists of separating the harvesting from processing activities in the case of a) factory vessels and b) companies which operate some fishing vessels but whose primary activity is land-based fish processing. In these cases, although non-confidential company records may provide some information, it is often not possible to separate fish harvesting and fish processing, the latter falling under manufacturing. On this point, the workshop concluded that a pragmatic approach should prevail in that where the available data do not allow for separate accounting, some onboard fish processing may have to be occasionally subsumed under fishing while some fishing activities would have to be in some instances recorded under fish processing.

Obviously, wherever feasible, separate accounts should be maintained allocating the production to the relevant ISIC category.

A further difficulty arises with the geographic boundary of production. The specific case of Namibia was raised where after independence foreign flagged vessels were used to land the quotas allocated to Namibian companies. Given the great importance of the fisheries sector for the Namibian economy, the way the output by foreign vessels is treated in the accounts has a large impact on the country's GDP. Until 1997, this output was not treated as Namibian production and GDP only contained the payments made to the Namibian quota holders by the owners of the foreign vessels (i.e. a type of royalty or property income). Since 1998, the residence criterion instead of the nationality (flag) of the vessel was used, in accordance with the recommendation of the 1993 SNA.

According to the 1993 SNA definition, in fact, residency is based on the concept of the location of the centre of economic interest of the operation. This appears to be in line with the concept adopted by all member agencies of the Co-ordinating Working Party on Fishery Statistics (CWP) at its Ninth Session (1977) and defined more precisely at the CWP's Tenth Session (1980) as follows:

> *The flag of the vessel performing the essential part of the operation catching the fish, should be considered the paramount indication of the nationality assigned to the catch data and this indication overridden only when one of the following arrangements between a foreign flag vessel and the host country exists:*
>
> > *a) the vessel is chartered by the host country to augment its fishing fleet; or*
> >
> > *b) the vessel fishes for the country by joint venture contract or similar agreements (as opposed to the ad hoc practice of a vessel selling catches to a foreign vessel or landing catches at a foreign port) and the operation of such vessel is an integral part of the economy of the host country.*
>
> *When governments negotiate joint ventures or other contracts in which vessels of one country land their catches at ports of another country or unload their catches to vessels of another country and the one of the above-mentioned criteria is applicable, the assignment of nationality to such catches and landings data should be specified in the agreement.*

A similar difficulty was discussed with respect to the sharing of cod resources between Russia and Norway. In this particular instance, once the respective shares of the Total Allowable Catch (TAC) by the two countries were agreed upon, Russian fishing companies sold a part of their quota for harvesting by Norwegian operators. In this instance, the centre of economic interest of the Norwegian vessels could not be considered as residing in Russia and consequently, their output would be attributed to Norway's GDP.

Possible criteria for the determination of the centre of economic interest in the case of fisheries are the length of stay and the regularity of fish harvesting in a country's EEZ by a foreign fishing vessel. In those cases where a foreign flagged vessel stays for an extended period of time (e.g. one fishing season or one year) in a country's EEZ or returns for a substantial part of a year on a regular basis, it might be assumed that its centre of economic interest lies with the host country. Other criteria could include the location where the harvested fish is landed and/or processed.

Although the approach described above is preferred for accounting purposes, data availability may not allow its practical implementation, especially in the case where data on output of foreign

flagged vessels is incomplete, thus preventing the allocation of their production to the host country's fisheries GDP.

A practical problem was discussed where accounting needs to be based on limited data. In the specific instance of Namibia, for example, in the absence of any recent survey data on intermediate consumption such as costs of fuel, repair and maintenance, supplies, etc., fixed coefficients are used to estimate the share of intermediate consumption on the value of output. This procedure is likely to result in overestimating GDP during bad fishing years and underestimating GDP in years with good catches and higher catches per unit of fishing effort. While the preferred way to address this problem would be to conduct cost surveys among the fishing enterprises at regular intervals, the estimation could possibly be improved by applying weights to the coefficients based on observed catches per unit of effort during the accounting period, where available.

BOUNDARY BETWEEN PRODUCED AND NON-PRODUCED ASSETS

A pragmatic approach for the determination of the boundary between produced and non-produced assets is to follow the FAO definition of aquaculture according to which farmed fish stocks would qualify as produced assets while all types of wild, enhanced and ranched fish stocks would be recorded as non-produced economic assets if available data allow to physically account for them. The consequence of this approach is that the re-building of a depleted wild fish stock by foregoing catches in the current period for the benefit of future higher harvests would not be recorded as capital formation and hence would not be included in GDP.

In the case of aquaculture, growth in the stock of cultured fish and shell fish is recorded as output and capital formation (work-in-progress) and included in GDP while for non-produced assets such as a wild fish stock, harvest is recorded as output (and not growth in the stock). Changes in the stock due to management activities are recorded in the SNA in the 'other changes in the volume of assets account', outside the production accounts.

The SEEA suggests to separately identify changes in non-produced natural assets such as a fish stock due to economic decisions (e.g. stock re-building through fisheries management) in the separate category "Other Accumulation" within the 'other changes in the volume of assets account'. This has the advantage to potentially inform policy-makers about the relationship between fisheries management expenditures and benefits in terms of creating the potential for future higher catches.

ECONOMIC AND NON-ECONOMIC NON-PRODUCED ASSETS

Whether a non-produced asset is considered an economic asset or a non-economic ("environmental") asset depends on the following two criteria (1993 SNA (para. 13.12): (a) ownership rights are enforced by institutional units, individually or collectively, and (b) economic benefits may be derived by its owner by holding it, or using it, over a period of time.

In the case of marine fisheries, the distinction between economic and non-economic assets presents some problems, both conceptually and practically. Economic benefit does not necessarily mean that the fish are sold in a market - they could be harvested for own final use (e.g. subsistence fishing). In some cases a fish stock does not provide an economic benefit to its owner - there may not be a fishing fleet, or there may not be much demand for the species at the time. There are also fish stocks which are not commercially viable, but important to the fishery, as a source of food, for example. These stocks may be of interest in physical accounts, but would not be given a value as economic assets - their value is already counted in the value of the commercially harvested species. In addition, determining what fish stocks are owned by a nation presents the conceptual problem of defining some geographical and/or political criteria, and a

practical problem of measuring and valuing the owned and not owned assets separately. These issues are further discussed below.

Fish stocks

With regard to ownership, a practical approach could consider fish stocks within a nation's EEZ as owned by that nation. Where a fish stock is spread (or straddling) over adjacent EEZs of one or several countries, an agreement among these countries on how the total allowable catch is shared, might be used as an indication on the respective proportions of the stock 'owned' by each of them.

There are some potential problems once a nation sells (or trades or gives away) part or all of its quota., The question arises of whether the activity of harvesting the fish should be included in the asset-owning nation's production or in the production of the nation to which the fishing fleet belongs (on the same point, see also the discussion above on Namibia). In theory, the production occurs within the national boundary of the asset holder and could be counted as that country's product. The 1993 SNA suggests that if the fishing activity by another nation's fleet is not prolonged in a country's EEZ, then the activity need not be recorded as production by that country – in effect the ship and the activity which takes place on it are within the national boundary of the ship-owning nation. It seems that this treatment is actually more desirable, unless there is some special arrangement made by the fish asset owner to contract out the harvesting of its asset, but even in this case, it does not seem advisable to attempt to measure the fishing activity as part of the asset-owning nation's production. The sale of the quota seems to be the sale of an asset.

In some instances, there may be no choice in treatment because of the lack of data. This could arise where production of the fleet is reported to its home country and the source of the catch cannot be identified.

A nation which owns quota rights to another nation's fish assets could record a claim – valued at the price paid, or residual value of the quota. (The corresponding fish stock could be shown in a satellite account of the quota holder if desired. It should be noted that the fish stock is a fixed asset that belongs to another nation, but that the quota holder has a claim on that asset.)

The second category of non-produced assets are non-economic ("environmental") assets which are not within the SNA asset boundary. However, accounts for "environmental" assets should be compiled, as recommended by SEEA, especially in physical accounts, because they provide useful information about a nation's fishing industry and natural assets.

Fish stocks that straddle or migrate between EEZs and the high seas or which lie permanently in the high seas might not qualify in the SNA as economic assets even where an international agreement might have established the total allowable catch and how it is shared among the participating fishing nations. The reason is that such an agreement does not confer ownership rights over such fish stocks. The 1995 UN Agreement on Straddling Fish Stocks and Highly Migratory Fish Stocks provides for 'newcomers' to participate in the exploitation of such resources as long as they abide by the requirement to cooperate in the management of these resources and comply with the management rules.

For straddling, highly migratory and high seas fish stocks, it was suggested that physical accounts be compiled identifying, whenever possible, fish catch by country and aggregate stock size. Valuation was not recommended as fleets of different countries would depict different cost structures resulting in non-comparability.

Habitats

There is increasing awareness of the ecological importance and economic significance of the various habitats of fish and shell fish including mangroves, sea grass beds, coral reefs, lagoons, and others including water itself. In most instances, these natural assets can be considered as economic assets because they are publicly or privately owned. As monetary valuation of these habitats is often difficult or impossible, participants stressed the need to record these assets in physical accounts which could be supplemented by suitable indicators of sustainability.

DEPLETION

With regard to renewable resources, SEEA defines the physical dimension of depletion as that part of the harvest which exceeds the sustainable level of resource use. In the 1993 SNA, depletion of a natural economic asset is the reduction in the value of the asset (e.g. fish stock) as a result of harvesting or other economic uses (para. 12.29 and 12.30).

A fish stock can be exploited on a sustainable basis within a range of stock sizes and annual harvests. Thus, a reduction in the size of a fish stock from one accounting period to another due to a harvesting level above natural growth does not necessarily imply an unsustainable use. Once a fish stock through harvesting is reduced from its virgin size, i.e. its equilibrium size where growth and natural decay are in balance, the stock generates surplus growth. The surplus growth initially increases as the stock is reduced from its virgin size and becomes zero at some minimum level when the stock collapses. The maximum surplus growth and thus maximum sustainable yield (MSY) is reached at a stock size and harvesting level somewhere between these two extremes. There are various biological factors causing surplus growth. One factor is the greater availability of food for the remaining fish. Another factor is that the exploitation of a fish stock usually changes its age-structure towards a greater share of younger and faster growing individuals.

The maximum economic yield (MEY) is usually obtained at a stock size which is higher than that one which maximizes surplus growth and thus sustainable fish harvest (i.e. MSY).

The generation of surplus growth by an exploited fish stock has a number of implications for national accounting. Firstly, the reduction in the physical size and the value of a fish stock is not necessarily bad. The definition of the term ‘depletion’ as a decline in the value of a natural asset by SNA is perhaps unfortunate in the case of a fish stock because depleting it, that is reducing its size and value, can mean using it more efficiently.

Secondly, the SEEA intent to account for and place a cost on depletion when the present harvest level is unsustainable requires a more precise definition when applied to a wild fish stock. If over successive accounting periods, the fish harvest is always higher than natural growth, clearly there will come a point when the stock collapses in commercial terms if not in biological terms. As surplus growth is generated, however, the sustainable harvesting potential of the stock only declines once its size has been reduced to a level at or below that one generating the maximum surplus growth. In physical terms, therefore, it might be appropriate to define depletion by two criteria: 1) a level of harvesting which is greater than natural growth during the accounting period provided that (2) the remaining stock size (closing stock) is below that one which can produce the maximum sustainable yield in future accounting periods. In other words, as long as the remaining/closing stock does not drop below the size which can produce the MSY, no physical depletion should be accounted for in SEEAF.

The above second criterion could be defined alternatively as a stock below that one which can produce the MEY. This definition would encompass the idea that depletion already takes place once society incurs an economic loss in future accounting periods irrespective of the fact that the stock is harvested on a sustainable level in physical terms. The application of this definition would usually require bio-economic analysis of a fishery to determine the stock size and fishing effort which can yield the MEY.

Once depletion has been defined in physical terms (in tonnes), the question arises how it should be valued in SEEAF. The suggested valuation approach is the opportunity cost concept, i.e. an estimate of the cost incurred to society because the excessive harvest in the current accounting period reduces the value of the catch in future periods. This cost is the difference between the present value of the future economic rent which the stock could have generated and the present value of the rent which will actually be generated by the reduced stock. The depletion measure shows the present value of the foregone rent in the future. Such valuation requires a bio-economic analysis based on assumptions about future prices and costs and fisheries management policy.

There are a number of difficulties in estimating physical depletion and valuing its cost to society. First, while fish catches may be known with a fair degree of reliability, assessing the size of a fish stock is intrinsically difficult because of seasonal and inter-annual climatic and oceanographic changes which affect recruitment, natural mortality and individual growth. Therefore, there is no single MSY for any one fish stock and the variance of stock estimates is often very high.

Even more complex is the estimation of the depletion cost because the fish stock is part of an ecosystem and interacts with other commercially exploited fish stocks in predator-prey relationships. For some stocks these interactions are known to some extent which allow for multi-species bio-economic modelling and analysis. For many others, these are not known and, therefore, depletion cost estimates need to be based on partial analysis.

DEGRADATION

Fish stocks

There was a discussion on the extent to which a distinction needs to be made between the depletion and the degradation of a fish stock. The quantitative drawing down of the stock size is usually associated with depletion. Concurrently, however, the quality of the stock may also degrade in that its age structure is altered and the risk of an irreversible stock deterioration increased. In fisheries biology, an accepted indicator of the latter risk is the share of the spawning biomass in the stock, i.e. age groups which can contribute to spawning. Other indicators of degradation of a qualitative nature are not commonly reported on a fish stock. It was suggested that quality indicators be reported as memorandum items in the asset accounts.

Habitats

Degradation is most appropriately applied to aquatic ecosystems and habitats and measured in quantitative and qualitative terms or a combination thereof. Species diversity and changes over time can be expressed in numbers and proportions of the observed species. Habitats such as mangroves, coral reefs and seagrass beds can be expressed in a combination of area extension and qualitative classifications such as excellent, good, fair, bad, etc.

Emissions

Emissions of pollutants into the air, water, soil, etc. are among the most important factors causing degradation of natural renewable resources. Emissions by the fisheries sector are due to, inter alia, combustion engines in fishing vessels, organic water effluents and soil salination by certain types of aquaculture, waste water of fish processing plants, etc. The fisheries sector's emissions are often relatively small when compared to the entire economy. However, in proportional terms, i.e. as a share of the sector's contribution to GDP or to employment, emissions are quite significant.

It was pointed out that in those instances where only some types of emissions are quantitatively assessed and recorded in accounts, a distorted picture may arise regarding the relative environmental damage caused by a certain sector or a specific activity.

VALUATION

As noted above, the SNA definition of depletion is the decline in the value of the stock during the accounting period caused by fishing/harvesting and other economic uses, i.e. excluding changes in the value of the stock due to natural causes such as climatic and oceanographic conditions or due to price changes. This raises the question how to measure the value of a fish stock. When there are no observable prices because the assets have not been purchased/sold on the market, SNA recommends estimating the market prices as the present or discounted value of future economic benefits expected from the asset (1993 SNA para.13.27 and 13.28).

Assuming sole ownership over a fish stock traded in a market, a prospective buyer would not base his price offer purely on the amount of rent the stock currently produces but take into account the stock's rent potential if it were managed in an optimal manner as well as the costs associated with reaching such optimal management. Where economic efficiency is the sole objective of fisheries management, this rent-maximizing approach would be, in theory, the most appropriate one. However, governments may pursue a multitude of fisheries management objectives (e.g. social or regional policy considerations) and, therefore, the national accountant may not, as a matter of course, assume that the future economic benefits expected from the asset coincide with rent-maximizing behaviour of the fishery manager. Still, there could be benefit in showing the trade off between these objectives and the objective of economic efficiency with reference to a rent-maximizing valuation.

A simple method of valuing a fish stock is to assume that the average harvest volume and rent value (selling price less all harvest costs) that is recorded for a recent period (e.g. 3-5 years) is sustainable into the future. The stock value is the capitalized value of the average annual rent, calculated by dividing the average annual rent by a discount rate. There may be some cases in which this method would be inappropriate because there is a reasonable expectation that rent in future years will be different from the average observed in recent years. In other words, there is information available which indicates that future harvest may be different from recent harvests, or that prices or costs will change. For example, it is possible that the catch is restricted to allow the fish stock to expand to a size that can provide a larger sustainable yield. In this case, if there is information about the expected yield, the expected rent, and the time at which a larger annual rent can be expected, it would be appropriate to consider valuation based on both the expected larger future value and the interim low harvest value.

Another example is the case where harvest volume is noticeably declining. If the future harvest will be lower, then the lower volume and value, rather than the recent average, could be used as the basis of valuation.

In reference to valuation methods, the issue was raised on the dividing line between the recording and accounting objective of national accounts and data analysis for policy-making. It was noted that national accounts should not contain data based on overly complex analyses and wide-ranging assumptions.

FISHERIES MANAGEMENT AND ENVIRONMENTAL PROTECTION EXPENDITURES

It was reported that there were current on-going efforts to give more emphasis to thematic issues (or purposes) and their classification in SNA. Environmental protection is one of the important purposes/themes in this regard.

SEEA contains a classification of environmental protection activities (CEPA). This classification should be cross-referenced with the institutional sector incurring the expenditures, i.e. households, producers, government, and non-profit institutions, although it might be difficult in practice.

For fisheries accounting purposes, a desirable separation is between those expenditures which are made for the management of the fish stocks and those which are incurred for environmental protection. The former category would comprise expenditures for research for fisheries management purposes, monitoring, control and surveillance (MCS), data collection and statistics, costs of the fisheries management authority (local, national and regional such as a regional fisheries management body) as well as temporary costs for facilitating structural adjustments of the fishery or fisheries sector (e.g. vessel buy-back programmes; re-training; etc.).

Environmental protection expenditures would include all those incurred within the fisheries sector, or by fisheries agencies, which are geared towards protecting the habitat and water quality of the aquatic environment. As marine and aquatic environment in general is affected by nearly all types of economic activities, it would not be feasible to include in fisheries accounts all environmental protection expenditures which might have an impact on the aquatic environment. Examples of environmental protection expenditures which should be recorded in SEEAF in the CEPA category 'Protection of ambient water' are as follows: prevention of water pollution from fishing vessels and in fish processing plants through in-process modifications, pretreatment plants, mechanical, biological and other water purification methods etc. And in the category 'Protection of nature and landscape', examples could include protection of fish species and fishery habitats by modifications of fishing gear or the establishment of a marine reserve, etc.

GUIDING PRINCIPLES

The group recommended to include in the report some guiding principles to indicate the respective responsibilities of various agencies. For example, where no stock sizes are reported by the qualified national or academic research institutions, no attempt should be made by the agency responsible for national accounting to estimate these values. National accounting agencies should, however, indicate to the respective fisheries institutions their data requirements for the preparation of satisfactory fisheries accounts. Fisheries institutions would be expected to react favourably to requests from national agencies to produce data of macro-economic interest.

MEASURES TO FACILITATE THE IMPLEMENTATION OF INTEGRATED FISHERIES ACCOUNTS

At the international and regional levels, participants suggested, in addition to the publishing of the SEEAF guidelines in the six UN languages, the conduct of regional training courses as a means to promote integrated fisheries accounting as well as the drawing of the attention of the UN Statistical Commission and the Commission on Sustainable Development to SEEAF as one of the tools to monitor sustainability of fisheries and oceans. Moreover, the effort of the participants from the Philippines was commended to establish a regional group, the Manila Group, on SEEA implementation for Asia and the Pacific including SEEAF. Similar arrangements were encouraged for other regions. Continued efforts by FAO and UNSD to promote SEEAF at various international and regional forums were considered highly desirable.

At the national level, a first priority was awareness-building among the various relevant agencies including those responsible for national accounting of the need and usefulness of SEEAF. In this effort, UNSD and FAO could assist countries in several ways: by providing the methodological guidelines on SEEAF with a covering letter to the heads and managers of national agencies responsible for fisheries, national accounting, planning and economic affairs; providing support to pilot projects for the implementation of SEEAF; and promoting the usefulness of SEEAF with governments and regional organizations.

Experiences made in the Philippines by workshop participants indicate the importance of advocacy work at the top level of relevant ministries and making implementation a joint exercise among the different agencies that should have a stake in the outcome. This would streamline the definitions and classifications used by national accountants and specialized agencies and would, in the long run, reduce implementation costs. In this context, pilot studies can serve well to demonstrate the usefulness of SEEAF and to promote implementation. Experience in Chile indicates that it is indispensable that government make SEEAF a priority.

Mutual on-the-job training was seen as the most efficient manner to achieve cross-disciplinary education on the various expertises needed for good implementation of SEEAF including fisheries biology and other natural sciences, economics and accounting.

APPENDIX A

Agenda

1. Opening
2. Introduction and workshop objectives
3. The need for and uses of fisheries accounts
4. Experiences with current fisheries accounts (SNA)
5. Key issues calling for integrated fisheries accounts
6. Chapter by chapter review of draft guidelines
7. Measures to facilitate the implementation of integrated fisheries accounts – data collection, institutional arrangements, pilot projects, etc.

APPENDIX B **List of Participants**	
Country/ **Organization**	**Name and Address**
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