



Ocean Accounts: the icing on the cake

Environmental-Economic Accounts are increasingly a mainstream tool for measuring the condition of the environment, the contribution of the environment to the economy and the impact of the economy on the environment. Water Accounts, Land Accounts, Greenhouse Gas Emission Accounts and Energy Accounts are just some of the more commonly available environmental-economic accounts. However, ecosystems are of increasing national, regional and global importance and countries are asking: why invest in ocean accounts? The purpose of this brief is to share details of a Global Dialogue on Ocean Accounting co-hosted by the UN Economic and Social Commission for Asia and the Pacific and the University of New South Wales, Australia which explored this question. The brief exchanges knowledge and presents insights shared by participants.

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What happens when over 100 decision makers and experts gather together to hear about Ocean Accounts? Excitement. Action. Commitment. And some great analogies.

Mr Toney Tevi, Head of Maritime and Ocean Affairs Division, Vanuatu Department of Foreign Affairs and International Cooperation, brought much laughter to the room with his analogy: “A Marine Spatial Plan is the cake but Ocean Accounts are the icing. Without the icing, it’s just a cake.”

The inaugural [Global Dialogue on Ocean Accounts](#)¹ was held 12 to 15 November 2019 in Sydney, Australia. Hosted by the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) and the University of New South Wales (UNSW), the Dialogue brought together scientists, economists, statisticians and policy specialists to share experiences and lessons learned in Ocean Accounting. Eighteen countries from across Asia and the Pacific were represented: Australia, Bangladesh, Cambodia, China, Fiji, Japan, Malaysia, Maldives, Myanmar, Palau, Papua New Guinea, the Philippines, Samoa, Sri Lanka, Thailand, Timor-Leste, Vanuatu and Viet Nam.

Joining the Asia-Pacific delegates were decision makers and experts from Canada, Portugal, South Africa, USA and the UK.

The [first annual meeting of a Global Ocean Accounts Partnership](#) was held in conjunction with the Dialogue. The [Partnership](#)² was established in 2019 as a coordination and communication structure for diverse member institutions who have a common interest to ensure the values and benefits of oceans are recognized and accounted for in decision-making about social and economic development.

What are Ocean Accounts?

The Dialogue recognized the world is awash with data. But this data is not always available, shared, standardized or brought together into a structure. Critically, the data is not always useful for decision makers. This means the data is not being used. Its power is low.

Accounts can help boost the power of data – through **structure** and **standardization**.

¹ Details of the Global Dialogue on Ocean Accounting can be found at <https://www.unescap.org/events/global-dialogue-ocean-accounting-and-first-annual-meeting-global-ocean-accounts-partnership>.

² Details about the Global Ocean Accounts Partnership can be found at <https://www.oceanaccounts.org/>.

Accounts bring structure to different **data types** (like climate data, hydrographic data, tourism data, data on pollution and pollutants, spatial data, monetary data and physical data) and to different **statistics** (population and agricultural censuses, water assessments, fish stock assessments, ecological assessments, etc.) and support the derivation of **indicators**. If a common accounting structure is used, these indicators can be integrated, and international comparisons made. This is shown in [diagram 1](#).

Importantly, accounts use a language which decision makers, especially Finance Ministers, can understand such as the contribution of the ocean to an economy, as measured by GDP, and the use of ocean resources, such as 10% of water used in coastal areas is used by international tourists.

Accounts are based on standards. Globally agreed standards from as far back as the 1940's (through the System of National Accounts) and as recent as 2012 (through the System of Environmental-Economic Accounting and Experimental Ecosystem Accounting standards). And standards emerging and for which the development of technical guidance was a key part of the discussion at the Dialogue.

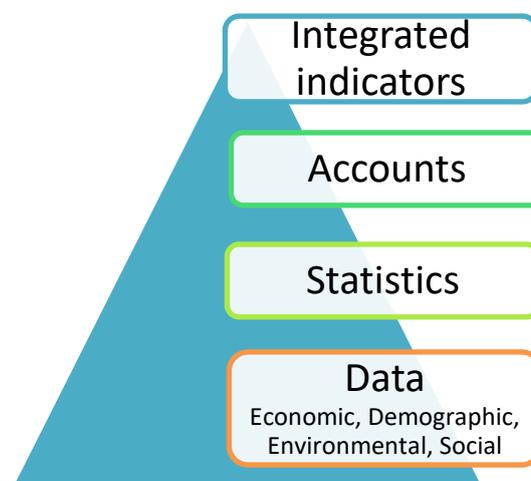
Accounts also support integrated action. As one delegate at the Dialogue said, Ocean Accounts are just one part of a system of accounts. By using common standards and common structures across different types of accounts (economic, water, waste, air, ecosystem), Ocean Accounts become a common set of facts for different parts of government: environmental protection, infrastructure development, planning and finance, transport, fisheries, energy, etc.

Ocean Accounts integrate four key components:

- 1) existing macro-economic accounts from which economic measures such as GDP are derived, and from which legal, illegal, unreported and unregulated activities can be accounted for;
- 2) existing environmental-economic accounts that explain assets and flows, wastes, expenditures, taxes and subsidies;
- 3) existing experimental ecosystem accounts which agree on a spatial framework for the extent, condition, biodiversity, services and value of ecosystems;

- 4) data on beneficiaries, technology, governance and management.

Diagram 1: From data to integrated indicators for global comparison



Accounts are not new. We hear about economic measures such as GDP on a nearly daily basis. Countries compare GDP amongst themselves. GDP is used as a proxy of our wellbeing. GDP is one of numerous indicators derived from an accounting structure following globally endorsed standards. Ocean Accounts are the same thing. In time, ocean indicators will be as prevalent as GDP.

What is the impact of Ocean Accounts?

The Dialogue discussed seven uses of ocean accounts.

Ocean Accounts deliver

1. Information decision-makers can understand
2. Data for inventories (blue carbon, greenhouse gas)
3. Inclusiveness – leave no one behind and nowhere behind
4. Evidence for planning – master planning, spatial planning, infrastructure planning, scenario planning
5. Cost-benefit tradeoffs
6. A paradigm shift – avoiding the oceans becoming a tragedy of the commons
7. Strengthened National Statistical Systems

1. Information decision-makers can understand

Understandable, recognizable and informative indicators were evident throughout the Dialogue. Here are some examples:

<p>Country facts and figures</p> <p>China has 18,000km of mainland coastline, Samoa has an Economic Exclusive Zone of 98,500 square kilometres but only 2,820 square kilometres of land area, Viet Nam is 3,260 kilometres long. Over 75% of Samoa's population reside within 2 kms from the ocean.</p>	<p>Economic contribution</p> <p>OECD estimate the Ocean industry value-added is projected to double by 2030 from USD1.5 trillion (2010) to USD3.0 trillion (2030)³. The Ocean Economy can contribute 20% of total GDP⁴. Ocean GDP accounts for 9.4% of GDP⁵</p> <p>Samoa's pilot study showed fish were Samoa's highest export commodity in 2018, representing 29.5% of total exports. Exports increased sharply from SAT\$8.2m in 2013 to \$32.4 million tala in 2018. Fish are the highest foreign exchange earner along with private remittances.⁶</p>
<p>Environmental contribution</p> <p>Coasts and oceans are some of the most productive ecosystems on the planet, providing an array of services that directly and indirectly support economic activity and growth. Services including protection from natural hazards; weather regulation; shoreline stabilization; carbon sequestration; wild-catch fisheries; energy from wind, waves and offshore oil; sea bound trade; tourism; and many others all provide the foundation for an estimated 3 to 5 trillion dollars of annual global ocean economic activity⁴.</p>	<p>Sectors</p> <p>Across the entire economy, the top 100 environmental externalities for business are estimated to cost around \$4.7 trillion a year⁴.</p> <p>Accounts balance the supply of something, for instance water or fish, with the use of that something, ie water or fish, and if the two do not balance, why? Is there an informal sector, for instance, supplying water or using fish?</p>
<p>Industries</p> <p>Travel and tourism generate US\$7.6 trillion annually—9.8% of total world GDP—and support 1 in every 11 jobs. Eighty percent of all tourism takes place in coastal areas, with beaches and coral reefs amongst the most popular destinations⁴.</p> <p>In Thailand, the tourism industry is of great economic significance when compared to most countries in the region. In 2016, tourism generated around 8.6% of GDP. Tourism used 21% of water in the Andaman area of Thailand in 2016, generated 26% of the Andaman areas solid waste, and used 57% of electricity in the Andaman area.⁷</p>	<p>Carbon and greenhouse gas emissions</p> <p>The total carbon stock of Beihai's mangroves is about 0.67 million t C (Beihai is in China's Guangxi Province). Average soil carbon stock of Behiah's mangroves is 100.4 t C/ha.⁸</p> <p>Tourism contributed 72% (or 13.2 million tonnes of CO₂ equivalent) of total GHG emissions (18.5 million tonnes of CO₂ equivalent) in the Andaman area of Thailand in 2016.⁹</p>
<p>Change</p> <p>Percentage change in the size of protected areas e.g 25% of mangroves in the Quang Ninh Province of Viet Nam have been lost due to land conversion for industry, urbanization and aquaculture farms.¹⁰</p>	<p>Informing public debate</p> <p>Source of pollution in the Ocean, e.g. percentage from marine boats, from tourist boats, from fishing boats, by aquaculture, by human activities, etc.</p> <p>Pollution discharge from tourism per person, per year.</p>

³ https://www.unescap.org/sites/default/files/1.1.P.1_Plenary_Slides_GOAP_12-15Nov2019.pdf

⁴ <http://pemsea.org/our-work/blue-economy>

⁵ https://www.unescap.org/sites/default/files/1.3.A.1_China_GOAP_12-15Nov2019.pdf

⁶ https://www.unescap.org/sites/default/files/1.3.A.3_Samoa_GOAP_12-15Nov2019.pdf

⁷ https://www.unescap.org/sites/default/files/1.3.A.4_Thailand_GOAP_12-15Nov2019.pdf

⁸ https://www.unescap.org/sites/default/files/1.3.A.1_China_GOAP_12-15Nov2019.pdf

⁹ https://www.unescap.org/sites/default/files/1.3.A.4_Thailand_GOAP_12-15Nov2019.pdf

¹⁰ https://www.unescap.org/sites/default/files/1.3.A.5_Viet%20Nam_GOAP_12-15Nov2019.pdf

2. Data for inventories

Ocean Accounts can be used to improve inventories including greenhouse gas inventories and blue carbon inventories. The Dialogue heard this was one of the surprise benefits of Ocean Accounts, unanticipated before the pilots commenced.

China, for instance, saw the benefit of ocean accounts to improve inventories and plans to link carbon-related assets in the Ocean Account to national and local greenhouse gas inventories for coastal wetlands as a next step. China's presentation noted out of all the biological carbon (or green carbon) captured in the world, over half (55%) is captured by marine living organisms – not on land – hence it is called blue carbon. All biologically driven carbon fluxes and storage in marine systems that are amenable to management can be considered as blue carbon. Subsequent use of “blue carbon” has focused on carbon-accumulating coastal habitats structured by rooted plants, such as mangroves, tidal saltmarshes and seagrass meadows, that are relatively amenable to management.¹¹

3. Inclusiveness – leaving no one and nowhere behind

Many countries found the inclusiveness of Ocean Accounts to be of high value. Inclusiveness of people and of place.

Parts of our societies, including activities by marginalized groups, are not usually captured in traditional economic accounts. Examples include small scale and artisanal fishermen and women. Ocean Accounts extend and complement traditional economic Accounts and will include both market and non-market-based activities and benefits. The Dialogue heard 90% of all fishers live in developing countries¹² and thus the Ocean Accounts are of particular relevance and value to Asia and the Pacific where there are 22 Small Island Developing States and a further three least developing countries with an ocean interface. Reporting on the size and changing structure of the ocean economy, inclusive of marginalized groups, is of value to these developing countries.

Parts of our planet, like the High Seas, are also not captured in traditional economic accounts. Economic Exclusive Zones are the geographic boundary for economic accounts whereas Ocean Accounts, in principle, are applicable to the entire ocean, whether under national jurisdiction or not.

4. Evidence for planning - master planning, spatial planning, scenario planning, infrastructure planning, integrated planning

Ocean Accounts are useful for planning in a very wide sense.

The Dialogue heard decision makers identified use of Ocean Accounts to inform *master planning*, including the development of the 12th Malaysia Plan, the Strategy for the Development of Samoa 2016-2020, and the 12th National Economic and Social Development Plan (2017-2021) of Thailand.

Ocean Accounts can also be used for *sectoral plans*, such as the Viet Nam National Strategy on Green Growth and the Viet Nam Sea Strategy 2020.

Ocean Accounts can also be used for *spatial planning*, both terrestrial and ocean based. Viet Nam, for instance, discussed using Ocean Accounts for provincial planning and Maldives shared using Ocean Accounts for Marine Spatial Planning. Thailand shared using their Ocean Account pilot to identify tourism potential and sites for conservation. Viet Nam and China were just two of many countries which discussed overlaying ecosystems, population densities and tourism activities to identify spatial areas, like a geographic hot spot, at risk of improper waste collection, treatment and disposal, or high water use, or high energy use, or all three.

Ocean Accounts can also be used in *infrastructure planning* to identify where (and where not) and how marine ecosystems perform better than conventional coastal infrastructure e.g. when do mangroves or wetlands provide more benefits than concrete.

¹¹ https://www.unescap.org/sites/default/files/2.2.A.3_China_Blue_Carbon_Global_Ocean_Accounting_12-15Nov2019.pdf

¹² https://www.unescap.org/sites/default/files/Bangladesh_needs_case_GOAP_12-15Nov2019.pdf

Ocean Accounts can be used in *scenario planning* to inform decisions. Thailand shared the use of Ocean Accounts in scenario planning for tourism sustainability.

Finally, integrated accounts support integrated planning. Countries stressed the importance of integrated planning, for instance resilient built environments include water, wastes, wastewater, low carbon developments and sustainable development planning, and actors are working across agencies. Samoa spoke about how they wanted to do a Tourism Satellite Account (TSA) and how it links to water use, energy use (particularly electricity component) and land use; a useful demonstration of how ocean accounts link to satellite accounts (a system of systems).

5. Cost-benefit tradeoffs and relationships

Ocean Accounts can also be used to inform cost-benefit tradeoffs. For example, to identify how growth and employment are underpinned by specific ecosystem conditions and functions e.g. invest \$x to restore ocean to condition Y = z benefits. Viet Nam, for instance, shared using their pilot Ocean Account to estimate impacts of tourism on ecosystems.

Several countries shared how the pilot Ocean Accounts had identified important and useful relationships. Malaysia shared how their pilot Ocean Account identified a relationship between fish landings (catches landed in foreign or domestic ports) and temperature change in the Ocean, which identified the importance of ocean temperature change relative to temperature change of waters in the Straits of Malacca. Malaysia also identified changing relationships between chlorophyll (an indicator of primary production) and fish landings, which may indicate unsustainable (over) fishing.

6. A Paradigm shift

Ocean Accounts offer an opportunity for changing how we discuss the value of the environment in decision-making. The 2030 Agenda for Sustainable Development commits all countries to build on existing initiatives to develop measurements of progress on sustainable development that complement GDP (SDG target 17.19). Ocean Accounts are one such initiative, and the Dialogue heard many examples of measures of progress that complement GDP. For example, we heard

from Viet Nam, Thailand and Samoa (three ocean-dependent countries) about measuring the use of energy and water resources by the tourism sector in coastal areas and the wastes produced by these tourism sectors. The Dialogue heard from China about valuing the extent of mangroves in Beihai Bay and once valued, the impact this had on getting agreement to restore abandoned shrimp ponds.

7. Strengthened National Statistical Systems

Ocean accounts build skills and capacity for national statistical systems. Technical skills and relationship management skills. In the area of technical skills, examples were plentiful and varied:

- development of information about ecosystems e.g. ecosystem extent and conditions in the pilot Ocean Accounts by Malaysia and Viet Nam
- valuation of ocean services (Malaysia);
- satellite accounting (e.g. Samoa)
- environmental-economic accounts (e.g. Malaysia, Viet Nam)
- using non-traditional data like earth observation data (China).

One of the key success factors identified by all five pilots were working relationships. The pilot studies brought together stakeholders from twelve different Ministries in Malaysia and Samoa to agree on the policy priorities and focus of their pilot Ocean Account. Ministries were involved in data gathering, compilation of the pilot Ocean Account, and identifying uses of it. This built technical skills beyond the National Statistical Offices to the wider government.

The Ocean Account pilots also strengthened administrative data systems and use. Samoa leveraged the pilot to improve the quality of existing administrative data which had benefits not only for the statistical use of the data but also the administrative use of the data by the Government.

The Ocean Account pilots also built spatial infrastructure. In Thailand, spatial infrastructure was needed to support the pilot area.

The Ocean Account pilots also identified data gaps, data sharing challenges and skill gaps. Identified data gaps included fish stocks, marine resources, and waste. Data sharing challenges included unwillingness to share data and sharing sensitive data across Government agencies. Skill gaps included technical capacity to collect, use, and interpret scientific data.

Finally, the Dialogue reminded everyone about the importance of international frameworks being applicable to every country, including small island developing states.

How does one compile an Ocean Account?

A key aim of the Dialogue was to share experiences and lessons learned in piloting the compilation of an Ocean Account. Five pilots were undertaken with the support of UNESCAP during 2019. These pilots focused on two key policy priorities – ecosystems and tourism.

China and Malaysia piloted the use of Ocean Accounts for ocean ecosystems, specifically mangroves.

Thailand, Viet Nam and Samoa piloted the use of Ocean Accounts for tourism, noting the importance of oceans to the tourism sector of all three countries.

The pilots were undertaken during 2019 and involved two key steps:

Step 1: Identify why an Ocean Account is needed. What is the policy priority the Ocean Account aims to address?

Step 2: Gather data, compile an Account, prepare findings, communicate the findings, use it for the identified policy priority.

Step 1

The first step was to identify why an Ocean Account is needed and what priority policy issue it will inform. This is achieved by bringing together decision makers, policy experts and technical experts and using a diagnostic tool developed by UN ESCAP, identifying policy priorities an Ocean Account could inform and then deciding which one to focus on for the purpose of the pilot.

Step 2

The second step involved gathering data, compiling it into the Ocean Account structure using the technical guidance under development and expertise of statisticians, preparing findings and indicators relevant to the policy issue, and communicating and sharing those findings with the policy makers involved in step one.

All five countries shared key success factors for their pilots. Essentially success needs the right people, working in a team, with a champion driving the policy need, and with expertise in gathering and compiling data into an accounting structure.

- 1) Making use of administrative data (Samoa) and cleaning of the administrative data for use for a wide variety of purposes, including statistical purposes. The pilot has left an enduring impact on the quality of Samoa's administrative data holdings.
- 2) Establishment of a working group between the statistical office, policy makers and technical team (Viet Nam).
- 3) Scoping report (Malaysia) to see what policy is of highest priority, refining the questions the Ocean Account will inform very carefully, getting buy-in from stakeholders so the pilot can be successful, and composition of the team (need experts).
- 4) Linking the Ocean Accounts to policy needs (Thailand). Tourism Thailand wanted to see the data, wanted to know what it was saying.
- 5) Starting from a simple local scale (mangroves in Beihai Bay, China), using the message to build momentum, to learn, and to extend to other areas (e.g. other water bodies) and other ecosystems (e.g. seagrass, corals).

Details of these processes and the tools used are available at ESCAP's Regional Ocean Accounts Platform:

<http://communities.unescap.org/node/1144/view>.

Action plan for collaborative effort

Throughout the Dialogue and especially on the last day, participants discussed actions which could be taken to value the Ocean and the benefits it provides. Participants also identified several commitments to progress Ocean Accounting.

Actions for 2019

- In 2019, version 0.8 of the Technical Guidance on Ocean Accounting for Sustainable Development and the five pilot Ocean Accounts was finalized and made available at: http://communities.unescap.org/system/files/technical_guidance_v0.8_final_draft_0.pdf.
- A [meeting summary of the Dialogue](https://www.unescap.org/events/global-dialogue-ocean-accounting-and-first-annual-meeting-global-ocean-accounts-partnership) and all presentations were also made available at: <https://www.unescap.org/events/global-dialogue-ocean-accounting-and-first-annual-meeting-global-ocean-accounts-partnership>.

Actions for 2020

During 2020, the Technical Guidance will be provided to the [UN Committee of Experts on Environmental-Economic Accounts](#) (UNCEEA) the international body providing overall vision, coordination, prioritization and direction in the field of environmental-economic accounting and supporting statistics. The Committee is overseeing revisions to the Experimental Ecosystem Accounting standards. The parts of the Technical Guidance which fall within the scope of the SEEA Experimental Ecosystem Accounting framework are expected to be included in the revision.

During 2020, countries will contribute to the revision of the Experimental Ecosystem Accounting standards and participants at the Dialogue were encouraged to reach out to their country representatives on the UN Statistical Commission and the UNCEEA to ensure their contributions and views on the Technical Guidance on Ocean Accounting are communicated.

2020 also is the year of the 2nd UN Ocean Conference in Lisbon, Portugal. The UN Conference provides an opportunity for countries to host side events on Ocean Accounting and upscale the profile of Ocean Accounting in country statements.

The Dialogue were introduced to a [High-Level Panel for a Sustainable Ocean Economy](#) launched by heads of state in September 2019 in conjunction with the UN Special Envoy for the Oceans, Mr Peter Thompson. Representing fourteen countries including five from Asia and the Pacific (Australia, Fiji, Indonesia, Japan, Palau), the High-Level Panel brings together world leaders who recognize that economic production and Ocean protection must be mutually supporting if we are to “produce, protect and prosper”. It is an initiative of serving heads of government committed to catalyzing bold, pragmatic solutions for Ocean health and wealth that support the Sustainable Development Goals and build a better future for people and planet.

The Panel has commissioned several blue papers for the UN Ocean Conference. Blue paper number 8 is on Ocean Accounting. Participants at the Dialogue were encouraged to share details of the High-Level Panel and the blue paper with their representatives at the 2nd UN Ocean Conference.

The 7th Our Ocean Summit will also take place in 2020. Hosted by Palau, the 7th Summit will be the first time it is being held in an island state. The Dialogue discussed opportunities for upscaling the profile of Ocean Accounting and sharing results of the pilots, including possible side events and country statements.

The Global Partnership for Ocean Accounting agreed to invite all countries and research institutions participating in the Dialogue to join. The Secretariat will reach out in 2020.

Actions for 2021

As stressed earlier, Accounts bring structure and standards. But standards are still developing, and the Dialogue was a major contribution to their development. 2021 is a major year for their future. In March 2021, the UN Statistical Commission will consider revisions to the current global standard, the Experimental Ecosystem Accounts. The Ocean Accounts technical guidance will be used as a basis for informing and influencing the oceans component of the Ecosystem Accounts. Participants at the Dialogue were encouraged not only to influence the development of the technical guidance but start preparing their representatives at the 2021 UN Statistical Commission to support adoption of the Ocean Accounting standards as a global standard.

Commitments

The Dialogue identified over forty-five commitments which could be made to progress Ocean Accounts. These commitments fall into ten categories:

1. Political motivation and leadership – engagement with policy makers
2. Ocean Accounts must be adopted at the national, regional and global levels
3. Establish communities of practice, including via GOAP
4. Development partner support
5. Extend the current pilot projects, and support more pilots
6. Data issues
7. Technical guidance
8. Regional/ Global institutional and partnership issues
9. National policy and institutional issues
10. Outreach and awareness

Overall, the greatest commitment was to upscale the profile of Ocean Accounts. Before attending the Dialogue, many participants had never heard about Ocean Accounts or appreciated their value to other policy domains such as blue carbon and climate change. Before developing a pilot, many participants had never understood or appreciated their value.

Final words

To conclude, the Dialogue was reminded of an African proverb, “If want to go fast, go alone; if you want to go far, go together.” And throughout the four days, participants also heard of the importance of being very pragmatic. As Dr Charles S. Colson, an expert in Ocean Accounting from Maine University quoted – “Just do it! There will be arbitrary decisions, make them! Move on!”

If you want to go fast, go alone; if you want to go far, GO TOGETHER.



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