

Blue Economy Concept Paper

1). Introduction

The “Rio +20” United Nations Conference on Sustainable Development (UNCSD), held in Rio de Janeiro, 20-22 June 2012, focused on two key themes the further development and refinement of the Institutional Framework for Sustainable Development and the advancement of the “Green Economy” concept. The meeting, in its outcome document, reaffirmed poverty eradication as its key challenge:

“Eradicating poverty is the greatest global challenge facing the world today and an indispensable requirement for sustainable development. In this regard we are committed to freeing humanity from poverty and hunger as a matter of urgency.”

(Para 2. The future we want. UNCSD 2012).

The Green Economy concept is structured to reflect this, being explicitly based and presented in the context of sustainable development and poverty eradication:

“We consider green economy in the context of sustainable development and poverty eradication as one of the important tools available for achieving sustainable development... We emphasize that it should contribute to eradicating poverty as well as sustained economic growth, enhancing social inclusion, improving human welfare and creating opportunities for employment and decent work for all, while maintaining the healthy functioning of the Earth’s ecosystems.”

(Para 56. The future we want. UNCSD 2012).

Throughout the preparatory process for Rio +20, many coastal countries questioned the focus of the Green Economy and its applicability to them. Strong positions were presented to the Rio +20 preparatory process for a “Blue Economy” approach to be more prominently addressed. This approach has broad relevance as the Oceans, including humankind’s common heritage of the High Seas, represent in many respects the final frontier for humanity and its quest for sustainable development. Institutional efforts were made to expand the Blue aspect of the Green Economy as embodied in the “Green Economy in a Blue World” report¹ but international momentum has moved beyond this. Throughout and subsequent to the Rio +20 process there has been a growing appreciation that the world’s Oceans and Seas require more in depth attention and coordinated action. This has been reflected in various initiatives *inter alia* the UNDESA expert group meeting on Oceans, Seas and Sustainable Development, the work of the Global Ocean Commission, the Global Partnership for Oceans and the prominence given to oceans and seas in the UN five-year Action Agenda 2012-2016.

Coastal and Island developing countries have remained at the forefront of this Blue Economy advocacy, recognising that the oceans have a major role to play in humanity’s future and that the Blue Economy offers an approach to sustainable development better suited to their circumstances, constraints and challenges.

¹ UNEP, FAO, IMO, UNDP, IUCN, GRID-Arendal (2012).

Cutting edge technologies and rising commodity prices are opening up new realms of opportunity for submarine exploitation, the High Seas constitute the last global commons and urgent attention is required to enable the sound management of ocean resources for the realisation of sustainable development.

2). Blue Planet

Oceans cover 72% of the surface of our blue planet and constitute more than 95% of the biosphere. Life originated in the oceans and they continue to support all life today by generating oxygen, absorbing carbon dioxide, recycling nutrients and regulating global climate and temperature.

Oceans provide a substantial portion of the global population with food and livelihoods and are the means of transport for 80% of global trade². The marine and coastal environment also constitutes a key resource for the important global tourism industry; supporting all aspects of the tourism development cycle from infrastructure and the familiar “sun, sand and sea” formula to the diverse and expanding domain of nature-based tourism.

The seabed currently provides 32% of the global supply of hydrocarbons with exploration expanding. Advancing technologies are opening new frontiers of marine resource development from bio-prospecting to the mining of seabed mineral resources. The sea also offers vast potential for renewable “blue energy” production from wind, wave, tidal, thermal and biomass sources.

Human development activities, however, have seriously taxed the resilience of the marine and coastal resource base. FAO data indicates that 87% of global fish stocks are fully or over exploited³. Increasing pollution and unsustainable coastal development further contribute to the loss of biodiversity, ecological function and the decline in provision of environmental services. Climate change threatens to remove literally the very foundations of broad swathes of coastal development whilst rising atmospheric CO₂ levels are undermining fundamental aspects of many marine ecosystems through ocean acidification; changing ocean chemistry at a speed faster than at any time in the last 300 million years⁴.

The potential of the oceans to meet sustainable development needs is enormous; but only if they can be maintained in and/or restored to a healthy, and productive state. The importance of oceans for sustainable development has been recognised from the beginning of the UNCED process, in Agenda 21, the Johannesburg Plan of Implementation and reaffirmed in the outcome document of the Rio+20 Conference; but ongoing trends of exploitation and degradation of marine and coastal ecosystems show that endeavours to date have been insufficient and that more needs to be and must be done.

² UNCTAD (2012).

³ FAO (2012).

⁴ IGBP, IOC, SCOR (2013).

3). The Blue Economy a Framework for Sustainable Development

The Blue Economy is a developing world initiative pioneered by SIDS but relevant to all coastal states and countries with an interest in waters beyond national jurisdiction. SIDS have always been highly dependent upon the seas for their well-being but the Blue Economy, whilst encompassing the concept of ocean-based economies, goes far beyond that. The Blue Economy conceptualises oceans as “Development Spaces” where spatial planning integrates conservation, sustainable use, oil and mineral wealth extraction, bio-prospecting, sustainable energy production and marine transport. The Blue Economy breaks the mould of the business as usual “brown” development model where the oceans have been perceived as a means of free resource extraction and waste dumping; with costs externalised from economic calculations. The Blue Economy will incorporate ocean values and services into economic modelling and decision-making processes. The Blue Economy paradigm constitutes a sustainable development framework for developing countries addressing equity in access to, development of and the sharing of benefits from marine resources; offering scope for re-investment in human development and the alleviation of crippling national debt burdens.

The Blue Economy espouses the same desired outcome as the Rio +20 Green Economy initiative namely: **“improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities”** (UNEP 2013) and it endorses the same principles of **low carbon, resource efficiency and social inclusion**, but it is grounded in a developing world context and fashioned to reflect the circumstances and needs of countries whose future resource base is marine. Fundamental to this approach is the principle of equity ensuring that developing countries:

- Optimise the benefits received from the development of their marine environments e.g. fishery agreements, bioprospecting, oil and mineral extraction.
- Promote national equity, including gender equality, and in particular the generation of inclusive growth and decent jobs for all.
- Have their concerns and interests properly reflected in the development of seas beyond national jurisdiction; including the refinement of international governance mechanisms and their concerns as States proximate to seabed development.

The mainstreaming of equity at international and national levels offers scope for developing countries to realise greater revenue from their resources and reinvest in their populace, environmental management, reduce national debt levels and contribute to the eradication of poverty and hunger.

At the core of the Blue Economy concept is the de-coupling of socioeconomic development from environmental degradation. To achieve this, the Blue Economy approach is founded upon the assessment and incorporation of the real value of the natural (blue) capital into all aspects of economic activity (conceptualisation, planning, infrastructure development, trade, travel, renewable resource exploitation, energy production/consumption). Efficiency and optimisation of resource use are paramount whilst respecting environmental and ecological parameters. This includes where sustainable the sourcing and usage of local raw materials and utilising where feasible “blue” low energy options to realise efficiencies and

benefits as opposed to the business as usual “brown” scenario of high energy, low employment, and industrialised development models.

The Blue Economy approach recognises and places renewed emphasis on the critical need for the international community to address effectively the sound management of resources in and beneath international waters by the further development and refinement of international law and ocean governance mechanisms. Every country must take its share of the responsibility to protect the high seas, which cover 64 % of the surface of our oceans and constitute more than 90% of their volume.

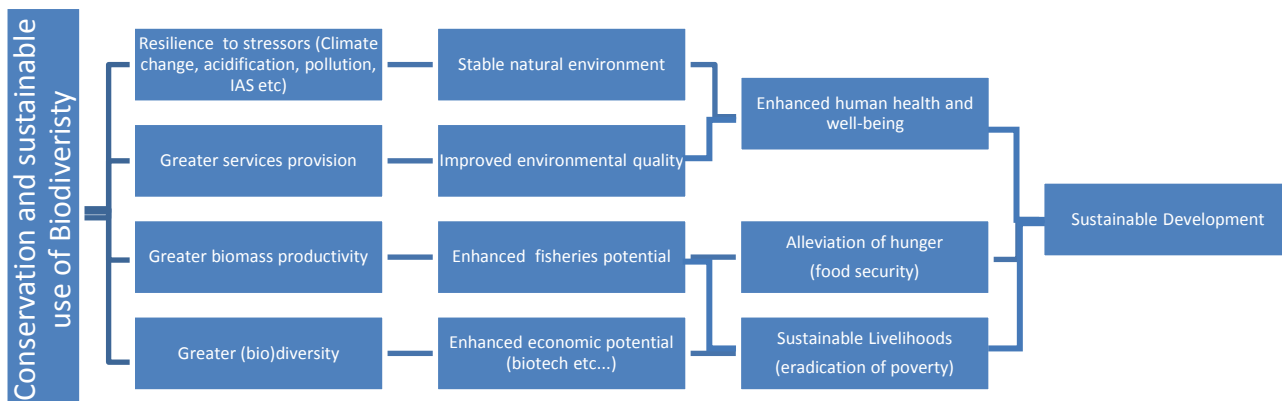
4). SIDS and the Blue Economy

The importance of marine and coastal resources to SIDS is evident, and has been elaborated in numerous international fora. The Blue Economy, however, offers the potential for SIDS to alleviate one of their defining obstacles to sustainable development; namely that of a narrow resource base. The remarkable per capita marine resource area enjoyed by many SIDS means that the Blue Economy approach offers the prospect of sustained, environmentally-sound, socially inclusive economic growth. SIDS must prepare now in order to position themselves properly to realise the optimal benefits for their sustainable development from the coming blue revolution.

The benefits of the Blue Economy, however, are not exclusively tailored for SIDS, they are equally applicable to coastal countries and ultimately the Blue Economy approach offers the means for the sound utilisation of resources beyond national jurisdiction – the sustainable development of the common heritage of humanity; the resources of the High Seas.

5). The Blue Economy – *Issues*

The natural world made up of the physical environment, its mineral components and biodiversity at all three levels (genetic, species, ecosystem) is intrinsically interconnected and the more diverse and productive the natural system, the greater the degree of interconnectivity. Hence the identification of particular issues is inherently an anthropogenic construct and depending on one’s perspective may appear arbitrary. A case in point is the precursory role that the conservation and sustainable use of biodiversity has in enabling the establishment of a Blue Economy, broader sustainable development and poverty eradication (see fig below). This is particularly true in developing countries where economies are more directly related to environmental exploitation.



Equivalent figures, to that above, could be developed for the other issues, underlining the overall interconnectivity and the need for an integrated and holistic approach. To this end the ecosystem approach must underpin all aspects of the Blue Economy incorporating inter-relationships, knock-on effects, externalities and the true costs and benefits of activities in terms of the natural blue capital.

a). Sustainable use of biodiversity

The natural capital of many marine and coastal ecosystems has been degraded, impacting upon the provision of services and livelihoods. Approximately 20% of the world's coral reefs have been lost and another 20% degraded⁵. Mangroves have been reduced to 30-50% of their historical cover and it is estimated that 29% of seagrass habitats have disappeared since the late eighteen hundreds⁶.

An ecosystem approach is required that factors in restoration of biodiversity and renewable resources, and proper management of resource extraction. For example in fisheries, some of the renowned "Sunken Billions"⁷ could be restored providing the basis for productive, efficient, sustainable fisheries and enhanced food security. The scientific determination and designation of appropriate MPAs can play a key role in this regard reconstituting biodiversity, ecosystem services and general resilience to other system shocks. Currently only some 2% of our oceans are protected, despite the CBD/WSSD 2012 target of a representative 10% area, whereas approximately 12% of terrestrial areas are under protection.

b) Food security

In the context of the Blue Economy food security is very closely related to the sustainable use of biodiversity particularly where it pertains to the exploitation of wild fisheries. 1 billion people in developing countries depend on seafood for their primary source of protein⁸.

⁵ Wilkinson, C. (2008).

⁶ Nellemann, C. et al (2009).

⁷ FAO/IBRD. (2009).

⁸ GPO 2013.

“We are deeply concerned that one in five people on this planet, or over 1 billion people, still live in extreme poverty, and that one in seven — or 14 per cent — is undernourished...”

(Para 21. The future we want. UNCSD 2012)

Aquaculture offers huge potential for the provision of food and livelihoods, though greater efficiencies in provision of feed to aquaculture need to be realised, including reduced fish protein and oil and increased plant protein content, if the industry is to be sustainable. Aquaculture under the Blue Economy will incorporate the value of the natural capital in its development, respecting ecological parameters throughout the cycle of production, creating sustainable, decent employment and offering high value commodities for export.

c). Unsustainable Fisheries

The proportion of marine fish stocks estimated to be underexploited or moderately exploited declined from 40% in the mid-1970s to 15% in 2008, and the proportion of overexploited, depleted or recovering stocks, increased from 10% in 1974 to 32% in 2008⁹. Fishing fleet subsidies are estimated to be between US\$ 10-30 billion per year driving the further depletion of fisheries that have otherwise ceased to be economically viable. The benefits lost to fishing nations as a consequence of over fishing are estimated to be in the order of US\$ 50 billion per annum¹⁰.

Aquaculture is the fastest growing food sector now providing 47% of the fish for human consumption globally¹¹. The last three decades have seen massive expansion in aquaculture operations raising concerns of environmental damage and unsustainable development models. Aquaculture sites have often been carved out of important natural coastal habitats with rapid expansion exceeding the capacity of planning controls and oversight. Aquaculture with fed species, if not managed properly, can impact biodiversity and ecosystem functions through excessive nutrient release, chemical pollution and the escape of farmed species and diseases into the natural environment.

It is essential that integrated ecosystem approaches are utilised in wild capture fisheries and aquaculture based on the best current scientific information with judicious application of the precautionary approach, and subsidies that encourage overfishing are removed.

d). Climate change and managing carbon budgets.

Sea level rise and change in ecosystem status due to changing temperatures, from coral bleaching to impacts upon migration patterns, have been discussed at length in diverse international fora and need not be re-stated here. Relatively new issues on the agenda, however, are Ocean Acidification and Blue Carbon.

- Acidification: Oceans are estimated to have absorbed approximately 25% of anthropogenic carbon dioxide since the commencement of the industrial revolution resulting in a 26% increase in the acidity of the Ocean¹². Ocean acidification is known to have a significant impact; many organisms show adverse effects, such as reduced ability to form and maintain shells and skeletons, as well as reduced survival, growth, abundance and larval development. Acidification will also affect carbon accretion in

⁹ FAO (2010).

¹⁰ FAO/IBRD. (2009).

¹¹ FAO(2010).

¹² IGBP, IOC, SCOR (2013)

coral reef building organisms causing net decreases in global coral reef coverage and associated species. Projections suggest that pH for the more vulnerable ocean regions could reach the aragonite tipping point within decades changing the very chemistry of ecosystems with potentially disastrous effects. As ocean acidity increases, its capacity to absorb carbon dioxide from the atmosphere decreases, thereby reducing the ocean's capacity to moderate climate change. There is currently no international mechanism to specifically address acidification, appropriate means need to be elaborated to enable coordinated international action.

- Blue Carbon: Several key coastal habitats such as mangroves, salt marshes and sea grass meadows have been found to fix carbon at a much higher rate per unit area than land based systems and be more effective at the long-term sequestration of carbon than terrestrial forest ecosystems¹³. Mangroves have been reduced to 30-50% of their historical cover and 29% of seagrass habitats are estimated to have been lost in the last 150 years¹⁴. This carbon sequestration role re-emphasizes the importance of maintaining, and where possible rehabilitating, such ecosystems as an opportunity for ecosystem climate mitigation and to also including them in carbon trading mechanisms.

The Blue Economy approach will set in place the policies, legislation, infrastructure and incentives to facilitate the transition to a low carbon economy utilising all the tools at its disposal including the ocean's enormous potential for renewable energy (wind, wave, tidal, thermal and biomass) generation.

e). Marine and coastal tourism.

Marine and coastal tourism is of key importance to many developing countries. Despite the global economic crisis international tourism has continued to grow. Data indicates that international tourist arrivals increased by 4% to 1.035 billion in 2012, generating US\$ 1.3 trillion in export earnings. The UNWTO forecasts further growth of 3-4% in 2013¹⁵. This does not detract however from the vulnerability of economies so heavily dependent on a single industry. Tourism brings challenges in terms of increased: greenhouse gas emissions, water consumption, sewage, waste generation and loss or degradation of coastal habitat, biodiversity and ecosystem services.

f). Pollution and marine debris.

The growing human population, intensification of agriculture and the rapid urbanisation of coastal areas are all key land based factors causing higher levels of pollution in our seas. Documented marine "dead zones" now number more than 400 covering an area of over 240,000 km² including some of the formerly most productive areas of estuaries and shelf. There has been an approximate threefold increase in the loads of nitrogen and phosphorous enrichment to the oceans since pre-industrial times¹⁶. A recent study¹⁷ estimates that the

¹³ Current studies suggest that mangroves and coastal wetlands annually sequester carbon at a rate two to four times greater than mature tropical forests and store three to five times more carbon per equivalent area than tropical forests (NOAA 2013).

¹⁴ Nelleman, C. *et al* (2009).

¹⁵ UNWTO (2013). World Tourism Barometer. Vol 11, April 2013.

¹⁶ IOC/UNESCO, IMO, FAO, UNDP. (2011).

“business as usual” model of nitrogen input will result in an increase of 50% in the fluxes of inorganic nitrogen to the Ocean by the year 2050.

Sea based sources of pollution are likely to be a growing issue as maritime shipping increases and submarine hydrocarbon/mineral exploration and extraction continue to expand. Furthermore market forces are driving exploration in ever more extreme environments posing increased risks of marine pollution as clearly demonstrated by the 2010 Deepwater Horizon disaster in the Gulf of Mexico.

Marine debris threatens the integrity of marine food chains. Plastic materials and other litter are widespread from the oceanic collection zones and gyres, through the glutinous mass of micro-plastics that can now be trawled from some waters to the debris and pellets often found in the gastrointestinal tract of sea and bird life.

The international mechanisms (e.g. Regional Seas Conventions, MARPOL) in place to address these matters need implementation with renewed vigour incorporating the analysis of the true costs and benefits of rectifying these concerns in the context of the natural blue capital.

g). Governance and international cooperation.

Each sovereign country is responsible for its own resources and sustainable development. This national responsibility and importance of national policies and development strategies should not therefore be downplayed. The principle of common but differentiated responsibilities, however, still applies. Indeed the need for structured international cooperation underpins all aspects of the Blue Economy. Whether it be with regard to updating and advancing governance mechanisms to ensure the sustainable development of waters beyond national jurisdiction (e.g. maritime security, high seas MPAs, sustainable fisheries, oil and mineral extraction) or assistance in enabling the effective management and utilisation of national EEZs (e.g. technology transfer, technical assistance, marine spatial planning), capacity building, finance to support national marine spatial planning and effective monitoring, control and surveillance).

A key component of international cooperation for the Blue Economy approach is Research. A science-based approach is essential to the development of the Blue Economy; commencing with the initial assessment and critically the valuation of the blue capital at our disposal. This will provide a basis for informed decision-making and adaptive management. This major undertaking must be addressed and continually refined and upgraded in line with changing circumstances, evolving technologies and our increasing understanding of the

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