

Ocean Governance and Hydrography

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When the Hydro Conference took place in Germany for the first time – that was in 2002 – I had the pleasure to speak at the opening ceremony in my capacity as the then President of the Federal Maritime and Hydrographic Agency. And today – 14 years later, after more than 8 years of retirement, - I feel extremely privileged to be invited to speak again. The more as just now the revision of the IHO Convention has entered into force which was adopted in 2005 by an Extra-Ordinary International Hydrographic Conference under my presidency. At many occasions during my active service I have experienced that these crazy old Hydrographers never get away totally from their involvement. Now it seems that I am suffering from the same madness. I am still concerned with the issue how to use the seas in a responsible way. And that includes the role of hydrography.

In 2002 I spoke about hydrography at a crossroads because of major new challenges to be met in the light of upcoming demands for marine spatial data for various purposes beyond safety of navigation. In the meantime these challenges have become even more crucial. Large parts of the seas have turned into intensively used economic areas. The economic value of the oceans and maritime industry is strongly gaining in attention. The “Maritime Age” has started. We need the seas and oceans more than ever. Maritime industry, termed as blue economy, has a great potential as a major source of new jobs and growth, expressed by a new magic word: blue growth.

Blue economy covers the traditional maritime industry: that is maritime transport, including port services and shipbuilding, as well as fisheries. But these sectors, still gaining in importance, are more and more supplemented by other economic activities. I can only mention some keywords: Aquaculture, a close relative of fisheries, is the world’s fastest growing sector in the food producing industry, covering the production of fish, shellfish, but also aquatic plants. In addition marine biotechnology may become an emerging market offering great potentials for marine aquatic products, in particular with regard to pharmaceuticals and cosmetics, but also for food, feed and the chemical industry.

Marine renewable energy including both offshore wind power and ocean energy, by making use of tidal streams, waves and currents as well as of differences in temperature or salinity, will increasingly contribute to meet our energy demands and to reduce greenhouse emissions. The exploitation of oil and gas from the seas is still growing and expanding to water depths of 2000 m and more and to remote areas, including regions covered by ice. The increasing request for raw materials encourages new commercial activities concerning mineral resources at the deep ocean floor, targeting polymetallic nodules, sulphides and cobalt-rich crusts. Some consider gas hydrates, which are an ice-like solid mixture of water and methane gas, to be the most important resource of fossil energy of the future.

In the consequence of these growing uses the need for protecting the seas as particularly sensitive and vulnerable ecosystems becomes more and more urgent. In addition to the most deplorable permanent inputs of pollutants from land-based sources blue economy implies massive threats to the marine environment.

This includes the increasing risk of navigation accidents, the introduction of alien species in ballast water, emissions from ships stemming from the poor quality of heavy fuels and the output of carbon dioxides. Overfishing and harmful fishing practices have dramatic

impacts on the marine ecosystem as a whole. Aquaculture may detrimentally affect the environment through pollution, parasites and diseases. Marine biotechnology poses new environmental threats, for example for the biological diversity of coral reefs and hydrothermal vents. The more the extraction of oil and gas is expanded, the more the hazards for the marine environment are escalating. Deep sea mining will increase the human footprint on largely untouched, still unknown and vulnerable ecosystems with the risk of destroying benthic communities and dependent fauna. The extraction of gas hydrates can cause submarine landslide, and methane leakages from the seafloor. Even ocean energy, including offshore wind energy – one of the cornerstones for shifting from fossil to renewable energy - cannot be generated without considering negative impacts on the marine environment.

Faced with these environmental threats blue growth can only be accepted if the principles of sustainable development are applied. We have to find solutions, which meet the needs and interests of economy including the security of existing and the creation of new jobs, and which are environmentally friendly or at least compatible.

How to develop such a solution? The appropriate regulatory framework is basically provided by the United Nations Convention on the Law of the Sea (UNCLOS). It constitutes or confirms sovereign rights, but also obligations of States. A most fundamental obligation is that States have to protect and preserve the marine environment. But though UNCLOS is supplemented by more specific international agreements, addressing different uses of the seas and corresponding protection measures, there still exist important deficits as UNCLOS reflects the early 1980s state of discussions. Another crucial point is ensuring compliance by the effective implementation and enforcement of regulations. Also in this regard there is the need for improvement.

All this leads to the more general question: How to manage, how to govern ocean affairs? Ocean governance, also one of the modern weasel words, is a challenging issue and may be understood as the efforts to steer, control and manage marine activities in accordance with the aims of sustainable development. I would be quite happy to elaborate more thoroughly on what is needed for sustainable ocean governance, but due to time constraints I can only very briefly name some aspects which should be taken into consideration:

- A close cooperation of States via the network of existing international maritime organizations, based on an integrated world ocean strategy is essential; a first step towards such a strategy has been taken last year by the UN 2030 Agenda for sustainable development which under goal 14 explicitly calls for the conservation and sustainable use of the seas;
- an international system for financing governance activities is needed;
- the law of the sea has to be further developed, among others with regard to marine biological diversity, the designation of marine protected areas, additional measures against illegal, unreported and unregulated fishing, and mandatory modern environmental principles;
- a multilateral, cross-national coordinated system of marine spatial planning must be established;
- the activities for capacity building with a focus on ocean policy and management have to be intensified.

Maybe some of you are thinking: Fine, but what has that got to do with hydrography? Well, up to now I have kept quiet about one of the pivotal essentials for ocean governance:

That is adequate and extensive marine knowledge. Even in the 21st century man's knowledge about the seas and oceans is rather limited. Here hydrography comes into play. Hydrography as the branch of applied sciences which deals with the measurements and features of the seas and coastal areas provides the basic geospatial data which are needed for all other ocean measurements and observations: physical data (often also called hydrographic data), chemical, geophysical and biological data – and derived products and services. That means in the end that you cannot really improve the knowledge of the seas without basic hydrographic information. But in papers and studies on ocean governance or marine knowledge the term “hydrography” is hardly to be found. Maybe with one exception concerning the extension of the continental shelf beyond 200 nm. What are the reasons for that finding?

When you ask who is caring for information about the oceans and the seas, you will find three different communities: the oceanographers, the marine environmentalists or ecologists and the hydrographers. These communities tend to seal themselves off from each other. Even in the BSH where due to its broad ranging tasks all these three communities are united in one agency, we sometimes faced this problem, at least at my time. You will also find examples for that on the international level. Do hydrographic services show any interest in marine environment protection activities beyond safety of navigation? What are the relations between the hydrographic services and the Global Ocean Observing System GOOS? Or the marine services of the European Copernicus Programme? Or let us take another example: On their research cruises scientists gain quite a lot of hydrographic data, more or less as some sort of by-catch, which they do not need for their specific research purposes. But are these data made available to hydrographic services so that they can be used systematically?

However, we can present an example of cooperation: the GEBCO project (General Bathymetric Chart of the Ocean), a joint project of IHO and IOC. And I hear colleagues saying: Well, that is a commendable example as GEBCO is exactly what is needed for ocean governance. Right they are, GEBCO is the only international project that is really dealing with the bathymetry of the open seas. But providing this basic information about the ocean is part of hydrography. Therefore, in my view producing bathymetric charts is a primary task of the IHO. Why then design it as a joint project of IHO and IOC, which – I quote the latest GEBCO terms of reference – “largely relies on the voluntary efforts of an international collaborating community of scientists and hydrographers with the support of the IHO and the IOC”? My impression is that IOC still is not really sure about a firm commitment which also may include financial implications.) Taking all in all I think that the involvement of hydrography in ocean governance matters seems improvable. What does that require?

I think that the involvement of hydrography in ocean governance matters seems improvable. What does that require? First of all we need a new self-conception of hydrographic services. They must broaden their traditional focus on navigation and must accept a new role as the leading marine geospatial service. However, others might be interested in such a role as well. So the hydrographic services must convince those others by their skills and capabilities. And they must offer new products, which are of interest for all those who are involved in marine activities. Hydrographic information is needed for a broad range of applications: offshore activities, construction of artificial islands and installations at sea, deep sea mining, marine spatial planning and integrated coastal area management, designation of marine protected areas, sustainable fisheries management. Not to forget marine forecast services.

However, hydrographic data are only part of what is required. They only complement oceanographic and marine ecological data. So a much closer collaboration between these three communities is necessary. It is positive that IHO is striving to intensify its contacts with other marine institutions. These contacts, however, must not be an end in itself, but must produce substantial results.

The core activity of hydrography is survey, which is a very costly activity. No wonder, that in principle survey work is restricted to the territorial waters and, if necessary, depending on the water depth, to the EEZ. And only for this area you may find some sort of States' obligation for carrying out surveys in the interest of safety at sea, as we luckily succeeded to introduce such a regulation in SOLAS at the beginning of this century. However, ocean governance requires a strong commitment by States, also to care for surveys beyond water depths of some ten or twenty metres and beyond waters of national jurisdiction, that means: for the open ocean. Of course I know there is a long way to go to come to such a commitment. But we cannot leave that task only to the good will and scientific impetus of volunteering experts in the context of GEBCO.

I can only encourage IHO to take a clear lead and to initiate a discussion in competent international fora for which purposes and for which areas hydrographic data are urgently needed. I can imagine that some sort of crowd sourcing might be helpful by enabling access to all relevant survey data produced incidentally by cruise and research vessels or anybody else, also including fishing vessels, though I know that the fishermen want to keep all others in the dark. In particular private companies conducting surveys as a basis for offshore or other marine activities should be obliged to make their data available for public purposes. (Just as an aside: I heard that the "true" world power Google uses all GEBCO data for Google Ocean, but complains about their incompleteness. Why not invite them to contribute to the costs of ocean survey activities?)

One consequence is that the hydrographic services, and that means States, must strengthen and broaden their cooperation as concerns marine geo-spatial services. A possibility to do so, offers the IHO. In the past IHO sometimes seemed to be a bit traditional and old fashioned. But it is wonderful news that the revision of the IHO Convention, which aims at modernising the organization and making it more powerful, is in force now. It provides a profound basis for this organization of very skilled experts to become a predominant maritime institution, which leads the way to the future. By further strengthening its collaboration with other relevant maritime and marine organisations IHO may influence their priorities and their work. A good example is ECDIS, where IHO developed and introduced the system and then urged IMO to make ECDIS mandatory.

Whenever you look into documents of international conferences and meetings dealing with ocean governance and sustainable marine development, you will find one issue which is always stressed, being a pre-condition for successful action: capacity building and technology transfer. I could quote Agenda 21 of the Rio Conference on Environment and Development, the outcome of the Rio+20 Conference as well as the 2030 Agenda for Sustainable Development, but also the annual resolutions of the UN General Assembly on oceans and the law of the sea. They all emphasize that capacity building is essential to ensure that States, especially developing countries, are able to fully participate in and benefit from the sustainable development of the oceans and seas. Since long IHO has recognised that capacity building is a really important factor. A lot of work is going on. And I am quite happy that one of my former colleagues from BSH chairs the IHO Capacity Building Sub-Committee. However, at least in Germany we could – and we should - do

much more to support developing States in the field of hydrography. And maybe it would help to convince policy-makers to allocate the necessary funds, by making quite clear that hydrography is much more than only providing information related to safety of navigation.

But capacity building and especially technology transfer also concerns the hydrographic industry. On the national as well as on the international level the public sector and private industry should jointly increase their efforts. I remember one very encouraging example in the past: After the tsunami in 2004 services and industry jointly tried to support those hydrographic services that suffered from that catastrophe.

Let me add one last point. Some of you may complain that, what I have said about the need to intensify hydrographic activities, is only wishful thinking. Who has got the money for that? Of course financial resources are a pre-condition. That is also true for many other aspects of ocean governance. In the longer run we will not make real progress without establishing a financing system for the conservation and sustainable use of the seas. Yes, I agree, much of what I have said is wishful thinking as long as we do not succeed in increasing the financial resources – nationally and internationally. There is a quite successful model: the Global Environment Facility, an international financial mechanism with a partnership of 183 countries, international institutions, civil society organizations, and the private sector. Did we ever try to get any funding from the GEF?

As we will never make progress if we do not point out the fundamental importance of hydrography, one very last thought: At several occasions I have deplored that hydrography still is a sleeping beauty. We must make hydrography more popular and better known. This congress is one opportunity to raise public awareness, there are many other possibilities. As a Governor of the World Maritime University I am asking myself in this context: At WMU we are educating the world's maritime leaders of tomorrow. Hydrography, however, is not a topic at all in their syllabus. The students should not to be trained to become hydrographers. But should they not at least learn about the significance of this branch?

The privilege of an opening speech is that the speaker is free to pose questions and express wishes, but he can leave it to the conference to find any answers. So you are invited to do so. I can assure you, I am not jealous if you join me in kissing awake our sleeping beauty hydrography and by this contribute to successful sustainable ocean governance.

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