Keynote speech

TOWARD THE GLOBAL GOVERNANCE OF COAST AND OCEAN SOCIAL-ECOLOGICAL SYSTEMS

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Abstract
The management of natural resources is changing paradigm from sustainable yields to sustainable ecosystems. This new paradigm is termed ecosystem management which is primarily about human values and their capacity to incorporate the best scientific knowledge, while everyday we are reminded that the relationship between humans and the environment may be approaching dangerous and irreversible thresholds. The adaptive capacity we need is much about changes to current institutions, depending on the governance pattern to be considered at different temporal and spatial scales, between different groups of stakeholders living and acting on different but interconnected ecological systems and interacting each other hierarchically. Yet, at the international and national level, governance systems are gradually changing throughout a triad of actors which are the states and intergovernmental organizations, the market forces, and the civil society. Referring to 72% of the planet, i.e. the coasts, small islands and the oceans deserve a coherent global governance system as in the case of the water or climate change issues. Besides UN-Ocean, an IPCC-like organisation covering the whole maritime basin, taking the name of Intergovernmental Panel on Maritime Basins (IPMB), could well contribute to feed the governance system with shared and reliable information leading to more coherent responses from existing but poorly or uncoordinated suite of organisations and initiatives on the coast and the ocean.

1. INTRODUCTION

The management of natural resources is changing paradigm from *sustainable yield* to *sustainable ecosystems*. This new paradigm is termed *ecosystem management* and focuses on management of the whole system for a variety of services, rather than focusing on commodity production for a single resource. But our own social system puts boundaries and constraints on our ability to manage the biosphere we are part of. Therefore, ecosystem management is primarily about human values and their capacity to incorporate the best scientific knowledge.

In other words, ecosystem management is about managing the social-ecological system which, by nature, has a multi-scale pattern, both spatial and temporal. Keeping the system within a particular configuration of states that will continue to deliver desired levels of ecosystem goods and services suppose to take into account its level of resilience, i.e. its capacity "to absorb disturbance and reorganize while undergoing change so as to still retain essentially the same function, structure, identity, and feedbacks" (Holling, 1973).

The best basis for defining these social-ecological system variables is the use of significant issues (e.g., loss of coastal wetlands, declining fish stocks, changing markets) as an entry point considering the relevant scales that need to be addressed. In other delectable words, enjoying a glass of *Romanée Conti* wine is an exquisite experience *per se* but that also may be underpinned by further considerations like the facts that such a crispy wine is coming from centuries of soils and "microclimates" daily observation, that the producing vines are actually

grafted from phylloxera-resistant American root-stocks, and that the palate feeling is inseparable from the wine image we have in mind, itself forged on the fact this is one of the most expensive wines in the world the price of which is dictated by the international market. Indeed, a tiny 1.8 ha vineyard is quite a complex multi-scales social-ecological system!

2. COMPLEX SYSTEM AND ADAPTIVE CYCLE

Still, with such an image in mind one may keep thinking that, after all, things are keeping stable thanks to human action making nature infinitely malleable and amenable provided the right values and the right timing are chosen for intervention. We would be in a world where "human ingenuity and knowledge surmount all obstacles to produce exponential growth" (Gunderson and Holling, 2002). Although this is partially true, we are learning that sustainability requires a worldview that integrates ecological with economic with institutional with evolutionary theory if we want to go beyond partial representations of reality and better "understand unpredictable dynamics in ecosystems with a corollary focus on institutional and political flexibility".

Yet, as underlined by Gunderson and Holling (2002) the millennium paradox we should try to look at and answer is "if human exploitation leads to resource collapse, why haven't all ecological systems collapsed, and why are we still here?". From the same authors, the answer resides in at least two factors:
- ecological systems have the resilience to experience wide change and still maintain the bulk of their function but probably not their full integrity for a number of them as shown by the Millennium Ecosystem Assessment, 2005;
- people do learn, however "spasmodically". People's adaptive capabilities have made it possible not only to persist passively to change and extreme transformations, but also to create and innovate when limits are reached.

Hibbard and al. (2007) gave an excellent illustration of this through their decadal-scale analyses of the complex dynamics of the human-environment relationship. They argue that humans have altered local and regional ecosystems for centuries through the domestication of plants and animals and the manipulation of fire, and that large scale alterations have been evident since at least the 1500s, but that the pivotal point in the relationship between humans and the environment came with the 20th century with a "Great Acceleration" in scope, scale and intensity since the 1950s. They see rapid inter-crossed changes in population, migration, energy use, knowledge, science and technology, and political economies, which have led to drastic changes in first, globalisation of trade, consumption modes, transportation in parallel with urbanization, and the decentralization of political economies. In the meantime, discovery of the ozone hole came as a complete surprise, because it was thought to be very stable. On the other hand, human awareness was also non linear with respect to acid rain detected as soon as 1890! Although remediation through reduced sulphur emissions appears to have mitigated the impact on forests, lingering problems exist with lakes that are still acidic.

Although we know that the relationship between humans and the environment may be approaching dangerous and irreversible thresholds, still current policy and science don't tell much about the capacity of social-ecological systems to deal with change and continue to develop on the same pace. And, at the time of a global financial crisis, it is getting clear that the kind of growth we have been used to can't go on indefinitely. Following the adaptive cycle described by the ecologist Crawford Holling in his work on forest ecosystems, during the growth phase natural capital is accumulated and growing connectedness helps to maintain stability. The system is so well organized that when a shock pushes the forest far outside that

range, it can't cope. Overall, the forest ecosystem becomes rigid and brittle. It becomes, as Holling says, "an accident waiting to happen". The parallel with social systems is obvious: when resources are used as efficiently as possible, there is no spare capacity to absorb shock to the system. As nicely put by Homer-Dixon (2006), we have to find the "middle ground between dangerous rigidity and catastrophic collapse", i.e. the appropriate adaptive capacity which is a central feature of resilience.

The state of the world is directly related to the fact that technology and the degree of connectedness in human society are both increasing exponentially. "Depending upon the nature of institutional arrangements, increasing global system connectedness could be interpreted as having a stabilizing or a destabilizing effect" (Young and al., 2007). Like the Green Revolution in the past, "erosion of diversity of practice may reduce food security by smoothing out temporal variations. The result could be a world that is both more stable in the short term but, because of this, increasingly vulnerable to sudden change or collapse".

3. GOVERNANCE IN-BETWEEN EXPLOITATION AND EXPLORATION
The adaptive capacity may be considered as a methodological approach aiming to enhance the management of social-ecological systems by both building resilience and steering change where scale is an important consideration. It recognizes the need for changes to current institutions and supports the view that neither top-down (e.g. command-and-control), nor bottom-up (e.g. market-orientated, community-based) processes are adequate in the face of short-term and long-term challenges to sustainability.

The adaptive capacity level will therefore result from the tension between "exploitation", i.e. the stability-inducing role of institutions, and "exploration", i.e. the capacity to experiment, innovate, and learn from changing circumstances (Fig.1 - Duit and Galaz, 2008).

Figure 1 - Adaptive capacity of Four Governance Types
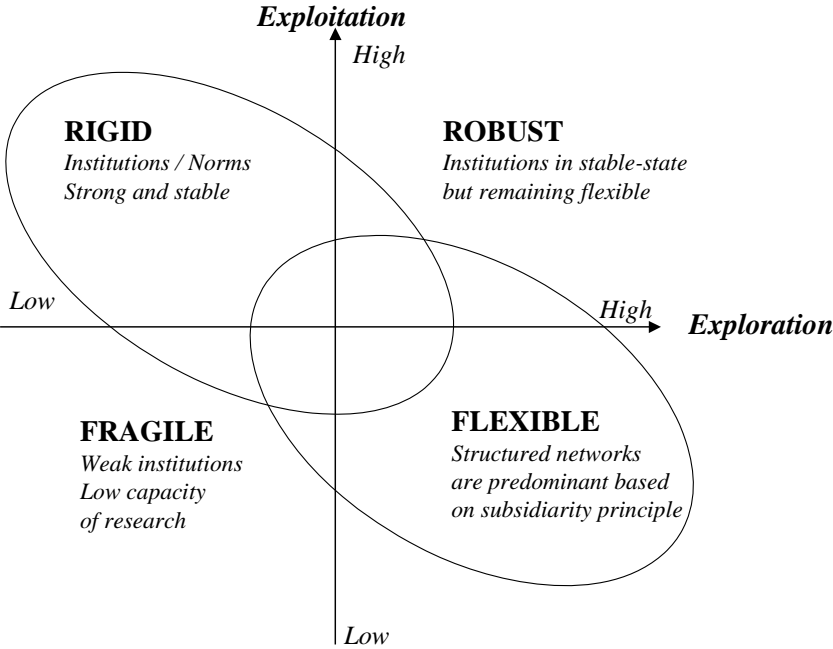
Adapted from DUIT A. et GALAZ V. 2008. Governance and Complexity – Emerging Issues for Governance Theory

As mentioned by the latter a "robust" governance of complex systems should combine the necessary institutions, though with rigidity-inducing effects, and the equally necessary processes of exploration. Real-world approximations of this ideal type of governance can be found in the literature on crises management (La Porte, 1996). Some of their common features are early detection of change, flexibility in decision making in combination with dense patterns of cooperative action, and the ability to re-organize.

Looking closer at the exploration side require our shifting from mere studying of our current environmental problems to actually solving them as developed by W. Dennison (2007). He sees the final step of employing the knowledge built from synthesis, context and visualization and applying it to problem solving as the most difficult for science practitioners who therefore "need to have a grasp of both the scientific issues as well as the political realm in which they are operating". From a prospective point of view, this means entering the "sustainability science" realm (Clark et al. 2003), i.e. instead of juxtaposing different disciplines, put them in a new common framework, a new vision, which in return will influence their own paradigm.

Sustainability science should be inclusive of not only scientists but the other governance actors like industry and market forces. Alteration of coastal environment driven by economical demand of relatively short time span is usually the rule while environmental degradation will have a much longer time span and graduated impacts on local, regional and national populations not to say beyond. Future research needs to improve methods to value meaningfully the cost-benefit of environmental change first in the coastal zone but soon in offshore waters as well.

For instance, the Mediterranean sea ecosystem is offering all riparian countries regulation services for waste disposal, decomposition and detoxification, but this cost has never been internalised in economic models and even less in national accounting. The cost of effluent management, from prevention and minimization to rectification and effluent re-use, to a level similar to that already provided by the Mediterranean ecosystem should appear as the true value of that regulation service (CIESM, 2008).

Then, the other issue is about "changing values" first between public and scientists' perceptions and, second across consumer generations. Laurence Mee (2008) pointed out the European citizen's low priority given to natural resources depletion and biodiversity loss as shown by the 2004 "Eurobarometer" survey, in contrast with strong scientific evidence (e.g. from the Millennium Ecosystem Assessment or OSPAR and HELCOM reports) that these issues are critically important. On the other hand, economic subsidies and imports of seafood are masking the real local/regional situation to end-consumers, i.e. that fish stocks are plummeting in their own regional sea whilst they continue to have access to species that actually are coming from far away marine waters (CIESM, 2008). All this is happening while basically our perception of marine life value is shaped by society and culture, which is far from being the same between countries and continents.
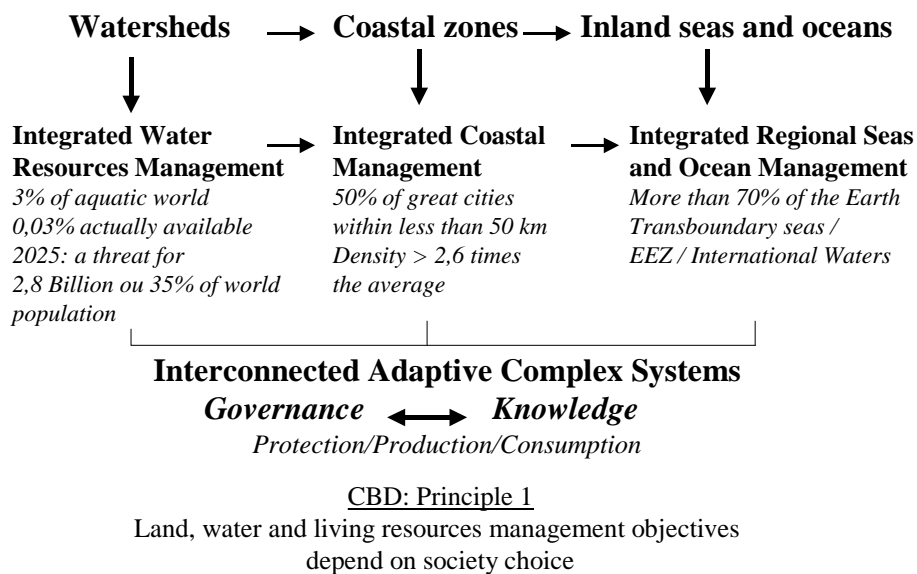
4. NETWORKING GOVERNANCE SYSTEMS FOR COHERENT MANAGEMENT
At the end, adaptive capacity depends on the governance pattern (Fig.1) which should be considered at different scales temporally and spatially, between different groups of stakeholders living and acting on different but interconnected ecological systems and interacting each other hierarchically. This is particularly true though difficult to achieve when considering global change expressions across the ecological continuum from the top of the watershed to the coastal and marine waters. Like the forest, higher level slower moving cycles

are supposed to provide stability and resources that can buffer a marine ecosystem like coral reefs and allow it to recover from collapse more rapidly, while lower level, faster cycles represent a source of novelty and experimentation. The long-term effect of localized collapse –part of the normal process of adaptation and evolution- can be positive as new ecological solutions may evolve and thrive.

In regard to the different approaches at work, integrated water resource management (IWRM) initiatives should be organically linked to integrated coastal management (ICM) and further offshore to a form of integrated regional seas and ocean management from national to regional and finally global levels, all underpinned by the ecosystem-based management approach (Fig.2). Too much confusion has been sprayed about in between these different approaches relying on the same basic principles of sustainable development. It is time to "demystify" the scientific/expert discourse and the best way to do it is to start dealing with the actual management practices encountered in the field and accept to "journey" with the stakeholders towards more sustainability.

Figure 2: INTEGRATED COAST AND OCEAN MANAGEMENT

Watersheds → **Coastal zones** → **Inland seas and oceans**

Integrated Water Resources Management → **Integrated Coastal Management** → **Integrated Regional Seas and Ocean Management**

3% of aquatic world
0,03% actually available
2025: a threat for
2,8 Billion ou 35% of world population

50% of great cities within less than 50 km
Density > 2,6 times the average

More than 70% of the Earth
Transboundary seas /
EEZ / International Waters

Interconnected Adaptive Complex Systems
Governance ←→ *Knowledge*
Protection/Production/Consumption

CBD: Principle 1
Land, water and living resources management objectives
depend on society choice

From a global governance perspective, depending upon the nature of institutional arrangements (see the MEA four scenarios), increasing global system connectedness could be interpreted as having a stabilizing or a destabilizing effect. Erosion of diversity of practice, for example, may reduce food security but access to a wider spatial area may increase food security by smoothing out temporal variations (Young and Leemans, 2007).

As regards the passage from a two dimensional (land) to a three dimensional (sea) environment, neither the watershed boundaries nor the ecological footprint look like the ideal approach. The issue-approach might help depending on the stakeholders we address to. Yes, there is a continuum between land and sea but the nice boundaries like those of a watershed are not necessarily the functional ones on the marine side. Because of global influences conditioning the regional seas and ocean dynamics, local strategies and planning won't be enough. On the long term they will make sense if they are themselves embedded in regional strategies like for example the Baltic one (2007- http://www.helcom.fi/). In this regard, we should look more thoroughly at the "maritime basin" concept that is globally taking shape

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between national Foreign affairs and Defence administrations with regards to safety and security at sea: here, the maritime space is not only composed of the marine element and its uses but include as well the coastal area where natural phenomena and human activities including piracy are transiting both ways, landward and seaward.

As far as the market and services governance is concerned, their representatives will pay interest to any integrated coastal and ocean management (ICOM) framework from the moment it serves their interest at the national, regional and global scales. There are no frontiers there; the drivers and the needs are different from what the "ICM circle" has been pushing forward, i.e. activities in relation with environmental protection to the point that ICM is today too much assimilated to an environmental activity therefore perceived as an obstacle not only by the private sector but also by local decision-makers (Shipman et al., 2009). The stake is to work on embedding ICM and ICOM into other areas of policy including energy, transport, health, and poverty reduction as one of the major Millennium Development Goals (MDG).

Keeping in mind the necessary re-thinking on achieving this management continuum through land-use and maritime planning, what are the lessons we can learn from the construction and implementation process of international conventions as intergovernmental organisation instruments related to the coast and the ocean ?

5. INTERNATIONAL CONVENTIONS AND GLOBAL GOVERNANCE

The global governance we refer to is about "the formation and functioning of rules, institutions, and practices through which international actors maintain order and achieve collective goals" (Sikking, 2009).

What are the global agreements that give the goals and targets that world's political leaders agreed to achieve with regards to global governance of oceans (72% of the Earth's surface), coastal areas (where half of the world population lives), and the 43 small island developing States (SIDS) which are especially dependent on their ocean and coastal resources? This is what the Global Forum on Oceans, Coasts and Islands has been trying to answer in its quite comprehensive document *How Well Are We Doing?* (Cicin-Sain et al.,2006) making an informal progress assessment in fulfilling goals and targets set out at the 2002 World Summit on Sustainable Development (WSSD) and more recently reaffirmed in the Millennium Development Goals (MDG). Besides such a useful assessment, one may wonder about the social and political dynamics that led to the varied global conventions and if some lessons can be drawn out of it.

As a major first example, the UN Convention on the Law Of the Sea (UNCLOS) which was signed in 1982 by a majority of countries and ratified in 1994, settled the regimes for global governance of international and national waters included into the EEZ. In this case, governments took the lead of the preparation process with strong incentives coming from the private sector among others the fishery industry whilst international NGOs came in but somewhat later.

Global governance system is feasible if a majority of nations and governments feel it will bring added value to their own national policy. Therefore, any intergovernmental organisation is worth what the countries are actually feeding into it. A recent typical example is the IMF reform after the G20 altogether decided it .

Another case that may be considered is the International Labour Organization Convention (ILOC) on the right of indigenous people: signed by a moderate number of countries (66 countries), it sets a number of commitments for national governments. For example, in Brazil the land is under concession to the benefit of indigenous people but without rights on the land they inhabit.

This international convention was promoted mainly by civil society through national and international NGOs.

Global governance system may be triggered by civil society when it comes to people's rights, in this case indigenous people. Since the ILO Convention is intergovernmental, it was made possible based on a strong relationship between governments and NGOs, be there national or international.

Another case of global coastal governance is about coastal resources that are by definition national resources like the RAMSAR Convention (1972) addressing the protection of wetland habitats and birds. This convention, like most of the conventions dealing with environmental protection, was promoted by civil society through international NGOs that led countries and their government to negotiate this international agreement. Control operations have been delegated by the UN to one of these international NGOs, in this case IUCN. It is the country government who proposes the area to be labelled RAMSAR to be then managed as such.

Another example is the Forest Stewardship Council (FSC) based on a private civil society regime to globally distribute an environmental label for sustainably managed forests.

Global governance system may be run through a combination of self-organisation and market mechanisms provided it is embedded in nation state systems and managed by local institutions. Although in a much more fluid manner hence difficult to control, the same should be basically true in the international trade and financial arena including the WTO and the IMF.

In one of the hottest topics of our time, climate change, we know that global agreements are extremely tricky to achieve like the failed Rio Tropical Forest agreement. Here, governments are not ready to let their national properties to be tapped for the sake of the global environment. Basically, it is what is at stake between developed and developing countries regarding the ongoing negotiation on global warming mitigation.

Global governance system may be acceptable if it is underpinned by a strong feeling of equity, in particular between developed, emerging and developing countries. In spite of the UN system, there is a huge gap between the countries "elite" negotiating in nice muffled conditions and what is felt by local people in the field.

Since the creation of the UN and other international institutions in the political, economics, environmental or security areas, the legitimacy of global governance has been constantly threatened by the dominance of rich northern countries. This aspect is one of the major complaints of the growing 'alter-globalisation movement' that emerged in the 1990s.

At the same time, the world is getting more and more multi-polar in all spheres and inclusiveness becomes the condition of effective policy-making where trans-national political networks or "trans-governmental networks" (Eilstrup-Sangiovanni, 2009) are an increasingly important feature in global politics as typically demonstrated by the G8 now enlarged to a G20. Gradually, existing international governance systems are changing where, instead of states alone, a "triad of actors" comprising (1) states and intergovernmental organizations, (2) market forces and (3) civil society actors play important roles in existing international and evolving global governance (Commission on Global Governance, 1995).

Global governance thus is a wide-ranging dynamic process of complex interactive decision-making which is subject to continuous development according to the frequently changing circumstances, and where other actors on different levels, such as local, sub-regional, and regional, may influence public policy-making provided they are aware of what they actually and potentially have or can play with.

6. SUBSIDIARITY AS A TRANSGOVERNMENTAL NETWORK FORM OF GOVERNANCE

Whatever these differences, past and current experiences (e.g. economic depression of the 1930s, 2nd World War and the cold war, decolonisation of the third world, the current financial/economic crisis) enhance the state's readiness or capability to cooperate and have thus strengthened the demand for global governance. As a result of growing interdependence, the need for political regulations "beyond the nation-state" has increased dramatically (Mayer et al., 1993). Actually such a delegating of sovereignty does not take place but in regional integration schemes such as the European Union provided it is the principle of *subsidiarity* which prevails.

Somewhat different from federalism[1] *subsidiarity* may be looked at in two ways: the most commonly emphasized, for instance in the European Union, is the obligation of the government to limit its intervention "into lower forms of social organization, and to do only that which the lesser group cannot accomplish for itself without assistance. Since each level of society is responsible for helping the "lower" one freely to accomplish its aims, it would contravene that relationship if the "higher" association arrogated to itself those tasks which can be effectively undertaken by a group that is closer to the individual.
However, the same premises also justify intervention by the central governing structure in situations where "lower" forms of organization cannot achieve their ends by themselves. In fact, *subsidiarity* insists not only that the central government *may* intervene in such situations, but that it has "an inherent right" to concern itself with the common good and indeed a duty to exercise that right. This is the supplement, the *subsidium*, which the political community must give to others, a help that does not destroy them but enables them to perform their own functions better and thus to contribute to the common good of all" (P.G. Carozza, 2003).

Practically, through the making and implementation of decisions and policies by those who are directly involved or affected, the principle of *subsidiarity* may well serve the functioning of trans-governmental networks where decisions tend to be worked out directly among the agents responsible for implementing them hence encouraging the development of differentiated solutions to local problems rather than the imposition of centrally directed uniform policies. Nevertheless, trans-governmental networks should be about developing standards, conducting evaluation, and sharing information as found in the case of the already long history of the CZM programme in the United States (Olsen, 2009).

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[1] Much of the American literature on subsidiarity focuses especially on its comparison to United States federalism. George Bermann's early and exhaustive study is still the standard-bearer of this work. George A. Bermann, *Taking Subsidiarity Seriously: Federalism in the European Community and the United States*, 94 COLUM. L. REV. 332, 336 (1994); *see also* Denis J. Edwards, *Fearing Federalism's Failure: Subsidiarity in the European Union*, 44 AM. J. COMP. L. 537 (1996); Gerald L. Neuman, *Subsidiarity, Harmonization, and Their Values: Convergence and Divergence in Europe and the United States*, 2 COLUM. J. EUR. L. 573 (1996); W. Gary Vause, *The Subsidiarity Principle in European Union Law— American Federalism Compared*, 27 CASE W. RES. J. INT'L L. 61 (1995).

Another more recent example of a trans-governmental network form of governance may be the International Coral Reef Initiative (ICRI) characterized by:
- a small group size of governments with homogeneous interest (protection of coral reef and associated ecosystems);
- the making of quick responses within a short time horizon to increasingly threatening factors like the climate change;
- flexibility in order to cope with uncertainty about the state of coral reef as a reflection of "the state of the world".

More generally speaking, one may distinguish between networks that provide governance and networks that may provoke governance responses as informal knowledge-based international networks like the IPCC setting standards and incentives along intergovernmental organisations and national governments.

When referring to the Figure 1 diagram, *subsidiarity* practice may be found in the lower part of the Y axis of "Exploitation" and on the right hand side of the X axis of "Exploration", with a trend towards rather "flexible" forms of governance, i.e. the development of networking rather than creating additional organisations and hence easing up the tension between the exploratory (sustainability science risk taking) and the exploitation (institutional setting) inherent to the governance of complex adaptive system.

No need to say that, in the real world, governance systems are nested within each other, at different scales. As quoted by Duit and Galaz, India's strategy to cope with climate change provides an example of cross-scale buffering effects: while initiatives from the central government to reduce underprivileged communities' vulnerability to the effects of climate change allegedly has been slow and ineffective (national-level rigid type of governance), a number of adaptation and risk-reducing strategies (local-level flexible type of governance) are promoted by a variety of actors (e.g., farmers, NGOs, international aid organizations, and the business community), which are likely to buffer some of the worst social impacts of projected extreme weather events. On the other hand, if a rigid governance system at the national level is combined with fragile local communities, the drawbacks associated with the first system can be seriously amplified.

It is why a number of governments have been encouraging local communities' initiatives through forms of self-organisation. Two other examples coming from two very different socio-economic and cultural contexts but both pertaining to the "state-dominated governance type" are the Kingdom of Thailand "Sufficiency Economy" philosophy towards a "balanced development strategy for the nation so as to modernize in line with forces of globalization while shielding against inevitable shocks and excesses that arise" (NESDB, 1999), and the Japanese "Sato-Umi" which is similar to the local co-use and co-management of coastal and marine resources (EMECS, 2008).

But the requirement of reliable knowledge and evolving institutions may well end up in what could be called the "double divide" between developed and a number of developing countries: the divide about the climate change effects added to the divide of governance adaptive capacity. In these conditions, how global governance should contribute to global equity ?

7. THE ETHICAL DIMENSIONS OF GOVERNANCE

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Global equity conflicts occur between the North and the South when it comes to the use and exploitation of coastal resources. Ever since the first global Conference on the Human Environment in Stockholm in 1972, the conflict between environment and development has continued up to the present. One may evoke a *global contract* to mediate between development and environment, reminiscent of Jean Jacques Rousseau's famous *Social Contract* (1762) which establishes and justifies people's sovereignty as opposed to royal absolutism. Rousseau also demanded a return to nature for humans as a solution to the problem of lost identity resulting from the nature-civilization divide. Today, we deal with the environment-development divide and the related ecology-economy schism.

Transferring the ethical imperatives to the concept of sustainability implies that the interests of future generations just as the stakes of the present impoverished in the Third World are to be born in mind and respected as they too are potential members of the global discourse community (B. Glaeser. 2009). The temporal and spatial outreach extends to the three "columns" of sustainability, namely ecology, economy, and society. In an open discourse, vested interests are identified, negotiated, and combined to stakeholder group values. In the process, when implementing a system of sustainable coastal management, it is imperative to provide abundant information and to enable stakeholders to participate in the decision-making process. The ultimate demand and challenge is—within the limits of the real stakeholder and discourse community—to simulate and approach the conditions of the ideal discourse community.

The question needs to be posed: How does the ethical concept—i.e., deriving and "proving" correct values, moral norms and guidelines for actions—translate into implementing concrete measures in coastal management? The mediating link is coastal research. Coastal research describes coastal systems, identifies stakeholder norms and values, and recommends policy goals. Coastal management integrates science and norms and implements them locally. The US National Research Council (1995) suggests two integrative functions of coastal research:

- to contribute to the understanding of natural and human systems,
- to structure interaction in socially desirable ways.

These two functions rely on an interdisciplinary approach between natural and social sciences, and they include ethical norms in a framework of social communication. Policymaking is normative, based on norms and setting norms. Coastal policy regulates coastal actors' behavior in interactions with the coastal natural and social environment, the scientific community, and management and administrations at different political levels. National and international coastal management strategies formulate coastal policies; they rely on societal norms which need to be based on consensus and derived through ethical discourse.

8. PERSPECTIVE ON THE FUTURE

It is a kind of reassuring to see that financial economists are looking for new paradigm as well! Lastly, some of them have been trying to reconcile rational and behavioural views in the "adaptive markets hypothesis", which supposes that humans are neither fully rational nor psychologically unhinged, but rather working by making best guesses and by trial and error, i.e. "learning by doing" (The Economist, 18-24 July 2009). Because the "ecology" changes over time, people sometimes make mistakes when adapting. Old strategies become obsolete and new ones are called for. Yet, when the G20 announced the preparation of a charter on "sustainable economics", not a word is said about the "how" such a charter could be implemented from a global governance perspective. Yet, if global financial regulation is not

necessarily the panacea, some global rules and the way to make them respected will have to be agreed upon.

Referring to the 72% of the planet, i.e. the coastal zones and the oceans, this could sound as not very encouraging though there already are a number of UN and other NGO-like organizations dealing with the sea with UN Oceans supposed to act as a cooperation mechanism between these different institutions and programmes. Unfortunately, the latter does not seem to work as efficiently as UN Water which is a similar mechanism. Why? Turner and Bogardi (2009) attributes the UN Water success to "donor recognition and support due to the active international freshwater scene with recurring mega events like the World Water Fora, the annual Stockholm Water Week and several others". They then mentioned IPCC as a possible model for "summarizing and interpreting scientific information and knowledge" about the coastal zones. As said before, IPCC is an excellent example of an internationally recognized network that nowadays provokes governance responses though his science-based forecasts have been first ignored for many years.

From the lessons mentioned earlier in this paper and considering the watershed-coastal zone-ocean continuum, we think that a global social-ecological governance system should take the global scene into consideration innovating on what is already there. As a matter of fact, it is not only the coastal zone but the entire "maritime space" and its specific "maritime basins" which are at stake provided they include the coastal zones as well as the international waters. Indeed, the coast, the small islands and the oceans should become much more visible in the international arena and this is happening, as in the case of the water issue, through big events like the Global Ocean Conference, the first of which was organized in 2002 just before the second WSSD in Johannesburg. A fifth one has taken place in May 2010 in conjunction with the Intergovernmental Oceanographic Commission's 50th anniversary. These conferences are providing a much needed forum for discussion and the framing of conclusions and recommendations on ocean and coastal matters relayed to countries, regional conventions and through the UN system including UN Ocean, which could and should work in close coordination with UN Water.

From the above considerations about global governance, intergovernmental organizations like UN Ocean have to be supplemented by other trans-governmental and non-governmental networks as new forms of governance. We definitely need to set up nested systems that are operationally viable and promote the linkages that are so urgently needed. An IPCC-like organization covering the whole maritime basin, Intergovernmental Panel on Maritime Basins (IPMB), as defined before could well contribute to feed the governance system with common and reliable information and provoke coherent governance responses from existing but poorly or uncoordinated suite of organizations and initiatives on the coast and the ocean.

Considering the risk of deepening the "double-divide" questioned earlier, the IPMB structuring should be organized around the main maritime basins of the planet including the use of the channels represented by regional seas conventions as intergovernmental organizations where they exist and where they should be promoted. This also suppose a cooperation mechanism between regions that could encourage those which are still institutionally weak. Regional conventions are usually dealing with the management of transboundary maritime basins using the best scientific knowledge produced within their own framework and through member states' national scientific institutions. What is missing is an overall vision of the coastal and oceans status with connections between these transboundary maritime basins related to large marine ecosystems and maritime regions of the world. In return, a focused IPMB may also feed the IPCC activities in regard to ocean and coastal zone

management and in preparation of the IPCC Fifth Assessment Report. It would therefore be at the core of the Regular Process called by the UNEP-IOC Assessment of Assessments Group of Experts for "global reporting and assessment of the state of the marine environment including social and economic aspects" (UNEP-IOC, 2009).

It is by making the coastal zone, small island and ocean issues, in other words the maritime space issues highly visible and understandable that member states will start talking about putting more coherence into their intergovernmental organizations system but also more strength in their trans-national governmental networks as developed earlier. This rather time-consuming objective may be gradually implemented through a nested governance system injecting speed and flexibility through trans-governmental and transnational cooperation networks guided by a science-based organization following the IPCC model. Although based on a large network, a future Intergovernmental Panel on Maritime Basins (IPMB) should be operated on the conditions of a small group size with relatively homogeneous interests, a succession of short time horizons, and strongly committed states.

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