

Panamá, 5 May 2002

Today is my second visit to Panamá. I am glad to be here again. The first time was in 2002, when I was invited to speak at the Chamber of Commerce in Colon about interpretation of coastal research data for sustainable development in Panamá. It was on 24 May 2002 – and the title of the talk was “Good governance – synergy of science and coastal development“. You still can download the power-point file from my web-page.

The cooperation between Panamá, and that is first of all Professor Gloria Batista de Vega, and GKSS, which is mostly Dr. Wolfgang Rosenthal, came about coincidentally. The GKSS buoy was first deployed in 1998, almost 10 years ago. For us, it was a challenge to find out if we can implement a monitoring scheme far away from home, where little was done so far. After a few years, Wolfgang Rosenthal told me, his director, that I should have a closer look – that he had mastered the challenge together with our partners in Panamá – among others also the Smithsonian Institute.

While visiting in 2002, Ida Herrera came, and with her the invitation to speak to the Chamber of Commerce about the “coast”, to exchange ideas about the coast, what to do, how to manage. Obviously, the coast in my home land – and I am referring to the state of Schleswig-Holstein in Germany, where Geesthacht is located – is very different from yours – we have dikes and marches, you have mangroves and rocks, for instance

But there are also similarities. The most obvious is that we - as you— have two coasts; that Schleswig-Holstein is as Panamá a land between the oceans, “ein Land zwischen den Meeren” as we say in German. And these two oceans are linked by a canal. Our canal, the Kiel canal with 98 km is even a bit longer than yours with 82 km; they are of similar age, and they are used by great many ships.

The canals set tones – the coast is not only a place of great beauty with exceptional ecosystems – fauna and flora. Coast means also traffic and commerce, also fisheries and tourism. The coast is utilized for various purposes – and the coast is permanently changing under the influences of many changing and sometimes new uses.

For some, the coast is just “there”, the end of the sea, an obstacle for shipping, a convenient place to put garbage into. However, the coast is an asset, something to look after. A treasure to be managed for the good of society. And for the good of nature, if you wish. I guess it was this view, which made the Chamber of Commerce to invite me to speak about our experiences in Schleswig-Holstein.

I raised the following points:

1. The coast needs to be managed. Without management, left to the vagaries of unregulated market needs, the coast as a landscape and an opportunity will deteriorate and no longer be an asset.
2. Any such management needs a scientific basis, to achieve the development goals set by society.
3. Natural and social/cultural sciences are needed for guiding the process of exploiting the full potential of the coastal zone in future economies and societies.

What may these goals be? This is not a scientific question, but a political and a social question, which society has to decide for itself. But I may be allowed to report two observations:

1. One goal should be a sustainable development for ongoingly providing goods and services, so that also under future, changing conditions, the potential of the coastal zone can be fully exploited with flexibility. Decisions of today are not inhibiting other decisions a few years later.
2. Coasts are undergoing a change of utility, from industrial („mature“ economy) to high-quality lifestyles (information based „new“ economy) and tourism. Health of ecosystem and aesthetics of the coasts will become significant assets – I sincerely believe.

Coastal research is needed to assist the public in gaining an understanding of the phenomena and perspectives. To understand the options before taking decisions. Thus, science should provide society with interpretative analyses of dangerous situations related to, for instance, pollution and storms, with analyses of risks and options, of ongoing and past changes, and of possible futures. This needs natural scientists – physicists, chemists, ecologists. But these dangers, risks, options, past and future changes must be related to society, to the

vulnerability, the needs and values of society. This task needs geographers, planners, sociologists and other social scientists. The scientific understanding must be conveyed in a language understandable for the public, and it must take into account the cultural and social constraints of all options.

The first step towards a coastal research, which can provide such services to society, is to reliably and routinely determine the present state of the coastal zone. We call this process monitoring, and the cooperation between the ASOCIACIÓN DEL CENTRO DE MONITOREO COSTERO PARA COLÓN DEL CARIBE CENTRO DE MONITOREO COSTERO DE COLÓN PARA EL CARIBE (ACEMOC) and GKSS is exactly on that – on making monitoring possible in a reliable, cost-effective and routine way. A GKSS-buoy measuring the ocean wave activity is sitting on the Atlantic side for several years now. Technicians and scientists from the ACEMOC and GKSS have demonstrated that they master the difficult task of not only deploying a buoy, but also to run it continuously and to transmit the data operationally, with very few interruptions, to the data centers in Panamá and in Geesthacht.

The next step will be to evaluate these long series of observations together with regular meteorological observations taken along the coast, to determine the up-and-down changes from year-to-year – we call this interannual variability –, to detect possibly existing trends related to anthropogenic climate change, and to analyze the linkage of such changes to ecological conditions including water quality. All this will need time, but I hope that we will come to an agreement during my visit here in Panamá on further concrete measures.

I am happy to see that already another element has been added to our joint research, namely the application of satellite imagery – together with our partners from the German Aerospace Center DLR; we will hear more about that later from Professor Susanne Lehner.

I have already touched the issue of anthropogenic climate change. Climate change is an issue for coastal zones; winds may be affected, thus currents, thus erosion and risks; precipitation may be affected as well, and thus climate change may become an issue for our canals. Also sea level rise may pose a problem. The present knowledge is

1. Man-made climate change is underway.

2. Most of the recent decades' climate variations is due to natural processes; less is caused by human emissions, but more significantly with respect to temperature and related variables.
3. Man-made climate change will emerge more clearly in the decades to come.
4. Climate change does not necessarily imply negative impacts or even catastrophes.
5. In some cases, climate change may present a healthy stress on society and economy, as it enforces modernization and improvements.

I suggest that we jointly embark on a study of the regional manifestation of man-made climate change in the last half century, and of the perspectives modern climate research is providing for the region of Panamá.

This brings me to the end of my second speech, five years after the first in 2002. My conclusions are the same as then:

1. Panamá needs an Institute for Coastal Research, dealing with both monitoring the state of the coastal ocean, the coastal zone and the application of such knowledge in economic and social contexts.
2. It should concentrate on applied research, combining natural, technical and socio-economic sciences.
3. Likely, the establishment of an Institute for Coastal Research would be a good investment into the economic and societal future of the region.

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