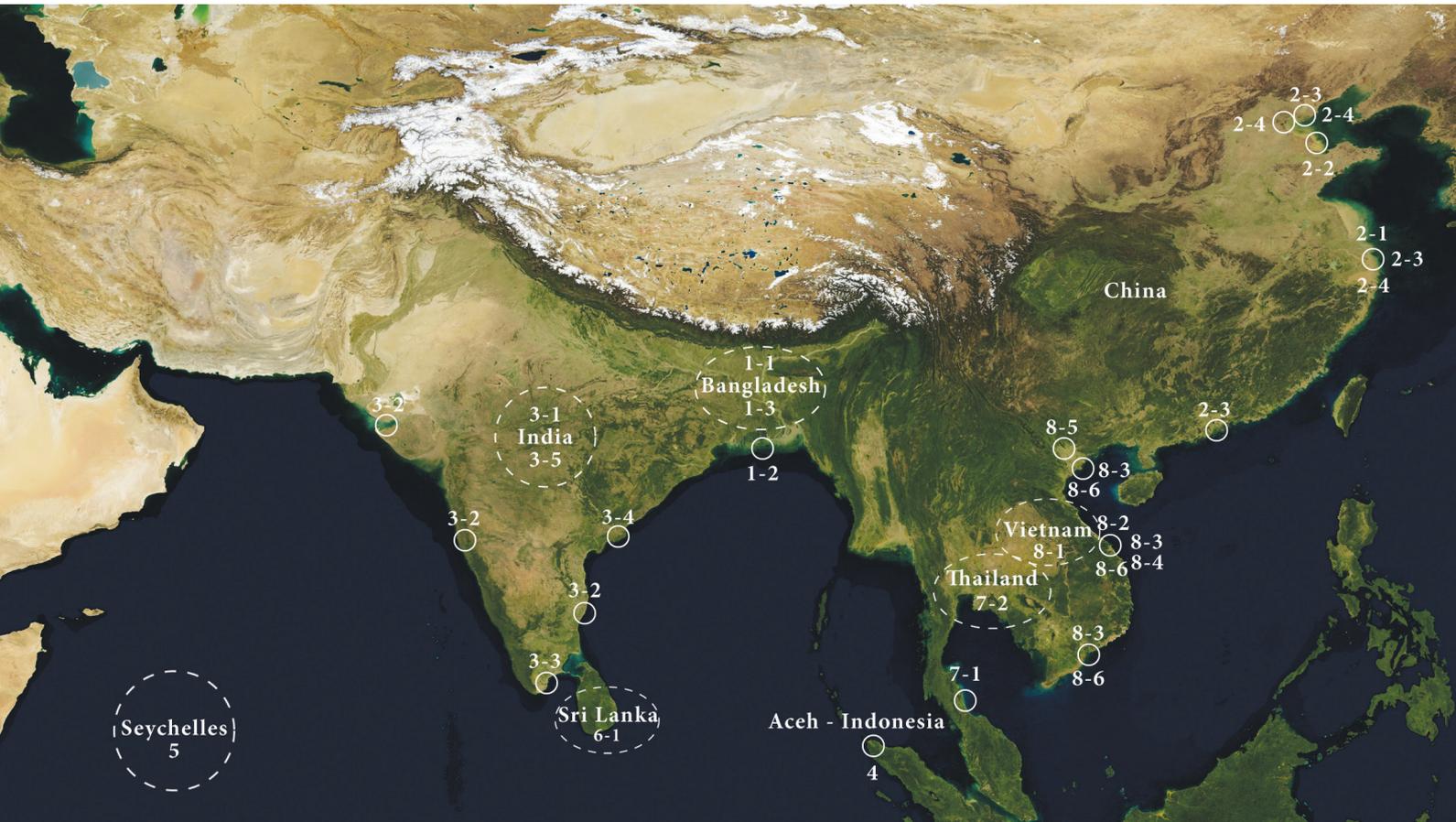


Introduction: Coastal Cooperation in Asia

Asia: a highly dynamic continent with a valuable and vulnerable coastal zone

Robbert Misdorp



Asia: high mountain ranges, long coastline bordered by large oceans, highly dynamic, valuable coastal resources and vulnerable to global change;

Geographic distribution of the CCC Part II cases:

Legend:

3 - 1 : indication of the CCC Part II Chapter

○ : CCC cases

□ : CCC national/regional ICZM efforts.

(source- satellite image: NASA)

Asia contains the highest mountain range in the world, the Himalayas. This is the birthplace of several large rivers: the Yellow River, Yangtze, Mekong, Irrawaddy, Ganges, Brahmaputra and the Indus. These rivers provide the lifeline for more than two billion people.

Asia, the most populous continent in the world is highly dynamic.

Rapid socio-economic development, river dynamics and cyclones annually battering the coast, all contribute to a highly dynamic character of the coastal zone.

Moreover, the rate of atmospheric warming in the Himalayas over the last few decades is unprecedented. The glaciers in the Himalayas are highly susceptible to melting and accelerated shrinkage, due to the combination of high altitude and low latitude.

Almost two third of the world population lives in Asia, but the available coastline in Asia is only about a quarter of the total length of the world's coastline!

The migration of many millions of people has made the Asian coastal zone a very densely populated area, probably the most densely populated in the world. With this has come rapid coastal urbanisation. This zone is not only crowded but also economically highly productive.

The Gross Domestic Product of Asia already rivals the GDP of the other two major world economies namely Europe and North America. China recently became the second biggest economy in the world. Out of the five largest harbours by cargo volume in the world, four are located in Asia and one (=Rotterdam) in Europe. Marine Asian fish yields have grown rapidly and have become the largest in the world.

This rapid economic growth - illustrated by the large industrial output, harbour development, coastal urbanisation and fish production - is a sign of increasing wealth, and this helps to combating poverty. However, it comes at a price: increasing pollution, competition for space, and declining fish stocks, to mention but a few examples.

The factors associated with economic growth put considerable pressure on the environment and particularly on the coastal system. These pressures hold especially in Asia, where the anticipated impacts of climate change will exacerbate these pressures. PEMSEA (Partnerships in Environmental Management for the Seas of East Asia, Manila) is one of the Asian based organisations which, for many years, has focused on addressing these pressures. It supports scaling up ICZM programmes - to realise an on-the-ground national framework for achieving sustainable development of coastal lands and waters - as well as twinning arrangements for River Basin and Coastal Area Management in several Asian countries. (www.pemsea.org)

In the beginning of the 1990s, within the framework of United Nations Framework Convention on Climate Change and Intergovernmental Panel on Climate Change, we produced the "Global Vulnerability Assessment" (GVA) encompassing 179 coastal countries. The GVA revealed that many Asian coastal nations and island states are highly vulnerable to an assumed 1 metre Accelerated Sea Level Rise (ASLR).

The main concerns derived from this assessment involve the 'People living in the coastal flood Risk Zone' and the 'Population at Risk' from annual flooding and the loss of food production, e.g. the rice production 'at Loss' (see CCC-III-2).

About two third of the world's 'People living in the Risk Zone' susceptible to flooding from the sea are located in Asia (Figure 1). The estimated, worldwide 'Population at Risk' of annual flooding will increase due to sea level rise, but population growth and coastal migration also play an important role (Table1).

Asia generates about 85% of the world rice production. With a 1 m ASLR, this rice production could decrease by as much as 4% if no adaptive measures are taken. Vietnam is the most vulnerable country in this respect and could lose 20% of its rice production. Overall, this could mean that about 75 million Asian people would face the loss of their main daily food source.

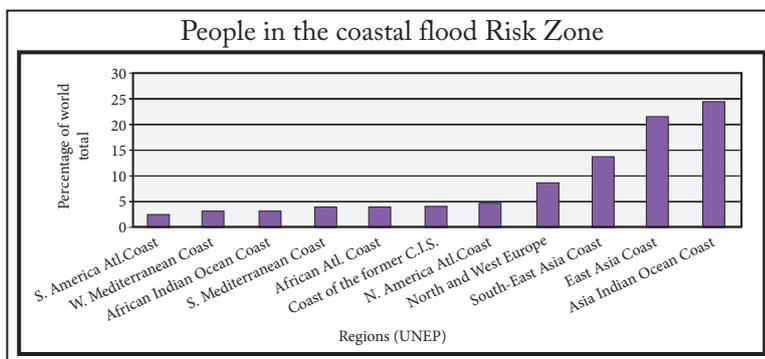


Figure 1: Distribution of People in the coastal flood Risk Zone among the Regions of the world. (The nine other regions with 'People in the Risk Zone' < 2% are not shown; source: R.Misdorp, based on 1993)

<i>Table 1:</i>	People in Risk zone and Population at Risk along the world's coasts, in millions	
	Scenarios:	People living in the flood Risk Zone
Base line year 1990	205	47
Assuming 1 metre Sea Level Rise (SLR)	260	60
Assuming 1 m SLR + 30 year population growth	395	100

(source GVA - *Global Vulnerability Assessment, 1993*)

Identifying and being concerned about these problems is one thing, helping to deal with them is another. Accordingly, the following step was to work together with Asian coastal countries, within cooperative frames such as, bilateral and multiple-lateral cooperation, the United Nations Framework Convention on Climate Change and IPCC.

In view of developments described above, it should therefore come as no surprise, that the focus of this CCC-Publication is on Asia.

The following CCC chapters on the Asian cases show how several countries are taking action to deal with the unsustainable overuse of resources. This is particularly important in light of the anticipated impacts of climate change. Addressing these impacts requires coordinated activities such as the planning and implementation of ICZM programmes, cooperative efforts and adaptive, no-regret, resilient actions in the coastal zone.

Reference:

GVA – Global Vulnerability Assessment 1993: Vulnerability Assessment for Population, Coastal Wetlands and Rice Production on a Global Scale. Former Netherlands Ministry V&W, and Delft Hydraulics -Deltares. For basic information see: www.wldelft.nl/proj/pdf/3uk00074.scherm.pdf).