

# Climate Change Impact and Adaptation Measures in the Cambodian Coastal Zone

Ouk Navann

Ministry of Environment

Cambodia

E-mail Address: navannouk@yahoo.com

The coastline of Cambodia extends along the northeastern shore of the shallow gulf of Thailand between the Thai and Vietnamese borders with length of about 435 km. The Cambodian coastal zone consists of estuaries, bays, and some 64 islands of various dimensions. Three provinces and one city namely Sihanoukville, Kampot, Koh Kong and Kep city, lie along the coast with a total population of 960,480 inhabitants (General Population Census, 2008). The coastal zone contributes significantly to Cambodian economy and its environment. Most human activities take place in the coastal zone, including recreation, industry, agriculture and fishery.

At present, many coastal areas such as Koh Kong province have been facing concerns such as mangrove clearance and pollution. Inevitably, the province will be under pressure resulting from climate change in the form of sea level rise. Rising seas will increase the risk of low-lying areas to floods, intensify coastal erosion, and increase saltwater intrusion. Coastal industries and economies, tourism and wildlife habitats would also be seriously affected.

The coastal area being evaluated in this study is only part of Koh Kong province covering an area of about 68.5 thousand hectares. This area has been selected for two reasons. Firstly, the preliminary study suggested that this area is the most vulnerable and located in low-lying area. Secondly, population density of this study area is more than that of others areas. According to the Initial National Communication (2002) using CCSR and CSIRO models, rainfall in 2100 in the province would increase between 5 to 15%, under rapid increase of CO<sup>2</sup> in the atmosphere (SRESA2 scenario), while under the slow increase (SRESB1 scenario) the rainfall would change between -5 to 5%. The changes in rainfall will affect the volume of river flows.

A 1-meter rise in sea level will have significant and profound effects on the economy and on the living conditions of the population in the coastal zone. The INC (2002) predicted that a 1-meter rise in sea level will inundate some parts of the Cambodian coastal zone. Koh Kong will be affected more severely by one meter sea level rise because most human resettlement in that province is mostly in low-lying coastal area. About 44 km<sup>2</sup> of this province would be under sea water permanently (0.4% of the total area of Koh Kong Province). Mangrove ecosystem is the widest area that would be inundated. In addition, about 56% of resettlement area (city/town)



would also be flooded. The economic loss from the damage of infrastructures of the city would reach about US\$21 million.

The potential impacts of climate change on the coastal zone, particularly Koh Kong's coast could be reduced if adequate planning for responding to such phenomenon is considered and well done. In terms of adaptation to sea level rise impacts, a number of integrated approaches should be implemented as soon as practicable. Public awareness should be taken into account as it is a cost effective means of reducing future expenditures related to sea level rise. The occurrence of extreme climate events in the past could be used as an analogy. The knowledge of community to cope with current extreme events should be enhanced by setting up a master plan for the coastal zone and action programs. This would help them to adapt to the possible damaging effect of climate change.