SOCIO-ECOLOGICAL VALUATION OF COASTAL ECOSYSTEMS IN KENYA: A GIS-BASED ANALYSIS LINKING GOODS AND SERVICES FROM TERRESTRIAL FORESTS, MANGROVE FORESTS, SEAGRASS BEDS AND CORAL REEFS

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Coastal ecosystems often offer an abundant source of goods and services for local populations. However, it is difficult to find a balanced use of it without a deep analysis. Management policies lack of information to determine a proper use of these zones, the latter of which often suffer from human activity. In this context, the goal of the present study is to develop an evaluation method of the value of goods and services in the case study of Kenyan coasts through a cartographic analysis. Transects through several ecosystems (terrestrial forest, mangrove forest, seagrass beds and coral reefs) will be characterized through field observations and socio-ecological studies. They will permit to compare these environments and to answer to some questions: Which environment has the largest value, from the ecological or economic point of view? Do the different goods and services from the different ecosystems complement themselves? What are the most important goods and services in coastal areas? Moreover, this study will enable us to know what the utilization level of certain goods and services is.

The evaluation model that will be developed from this analysis, taking into account actual and potential use of goods and services, will support decisions on coastal management, both in natural and in artificial ecosystems (Bockstael, 1995).

We know that several goods are used in the studied ecosystems, such as wood for construction or combustion (Walters 2005), raw materials (Moberg and Folke, 1999), alimentation (Rönnbäck, 1999; MacArthur and Boland, 2006) or medicinal products (Bandaranayake 1998). Moreover, socio-ecological services imply coastal protection (Teas, 1977), regulation of biogeochemical cycles, preservation of biodiversity (Moberg and Folke, 1999) but also cultural and recreational activities. This study will focus on which goods and services, between all of these mentioned in literature, are used by local population in the concerned area. Goods will be translated into monetary value, and socio-ecological questionnaires will be distributed among the population to estimate indicators (like biodiversity) of the ecosystems services.

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