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NAEWROB SUVANNAKES: SYSTEM DYNAMICS APPROACH FOR
ECONOMICS UTILIZATION OF MANGROVE AREAS: CASE STUDY OF
SAWEE-THOUNGKA ESTUARY AT CHUMPORN PROVINCE. THESIS
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Mangrove areas are an important economic and social resource, as well as being an important ecosystem. The economic utilization factors that affect natural mangrove areas have changed over time so this study is aimed to examine the relationship of economic factors and mangrove areas to estimate the changes in mangrove areas. System dynamics modeling was applied and analyzed with STELLA software in order to transfer a conceptual relation into a practical computer model. The economic factor was defined in power function form of product and utilization areas base on Cobb-Douglas production function. Utilization areas (activity areas), which affect natural mangrove areas, are shrimp culture areas and timber for charcoal areas. The amount of utilized is an important factor for these products and producers have expanded production areas to increase their incomes. The coastal fishery product determined by mangrove areas and fishing effort in an exponential form. The model simulation shows that mangrove area in the study areas decreased in the first 5 years (1986-1991) and increased after 1992 with the beginning of the plantation program. The most common pattern was for mangrove areas to be converted directly from shrimp cultures areas highly in 1986-1996 but after that changes have been quite stable. Four types of scenarios are investigated based on possible external forces including (1) an increase in mangrove planting areas, (2) a control of activity areas, (3) a quota on production yield and (4) a control on price of product. This result of the study will be helpful for policy makers as a source management of study areas.