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## ENVIRONMENTAL IMPACT

The environment can be defined as a complex and systemic structure, which integrates natural and anthropic systems and subsystems, connected by material, energetic and informational relationships. Connections may include physical, chemical, biotic, social, and economic fields, which contribute to a state of equilibrium capable of ensuring the structural and functional support of components considered to be central to system.

The intervention of factors external to the system can upset its balance. External factors can act on the information, energy and material links that unite the component subsystems, disrupting or disrupting them. Breaking or disrupting these connections takes the system out of equilibrium.

Ecological systems have the capacity for self-regulation, constantly responding to environmental factors that tend to disorganize them, but they have the capacity for self-regulation within certain limits and in certain specific ways. For these reasons, the intervention of the human (anthropogenic) factor in these systems by organizing artificial activities must be done so as not to destroy this capacity and the balance of the system.

Climatic conditions have influenced the evolution of life on Earth, and historical evidence of climate change and its impact show that in recent decades a wide variety of anthropogenic activities have begun to affect the global climate and the environment. This phenomenon, which can be included among the natural services of the environment, must be considered as a critical component in dynamic processes modeling.

Concerns about the geo-physical, natural and human impact on the climate and the environment have increased greatly in recent times, and scientific efforts have been focused on understanding these issues. If we are talking about anthropogenic aspects, we need to answer the following questions: What do we do with energy production? Do we develop crops that are adaptable to different climatic changes? Water conservation on a massive scale? The population? Do we restore biomes to counteract or reverse the increase in greenhouse gases? And the most important question: are we able to find the right answers to the problem of global climate change and environmental change? so that we can find solutions to limit anthropogenic impact.

The Danube Delta Biosphere Reserve is an important area to study what has happened to morpho-hydrographic changes due to human activities and environmental climate change in the past and to anticipate, by modeling the data obtained, what will happen in the future.

With the regularization of the Sulina arm and its deepening for maritime navigation, the impact of human action in the evolution of the delta begins. Through 3D we aim to show that there can be a synergy between navigation and environmental protection.

Also, by reducing the swamp area through agricultural, forestry and fisheries arrangements, viewed only from the point of view of "cause and effect", it significantly influenced the state of territorialization of deltaic ecosystems, in a combination of internal and external mechanisms and a complex series. interactive feedback on climate and environmental systems themselves.

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Adaptation to environmental policies, solutions to reduce the impact, in 3D we aim to:

- spatial planning methods that allow the comparison of different ways of using the territory
- the reduction of the ecological footprint that takes into account the reality of the pressures exerted on the environment, precisely due to the role that the ecological imprint has in the evolution of the human society.
- Implementation of the Concept of Ecosystem Resources and Services Degradation Neutrality (ERSDN), developed to encourage the implementation of an optimal mix of measures to prevent, reduce and / or reverse the degradation of ecosystems to achieve a net state of healthy and productive land. ERSND aims to balance in advance losses in natural capital and ecosystem functions and services associated with measures that produce alternative gains through approaches such as land restoration and sustainable land management.