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## **A geoethical approach to the territory: the case of the lower Tordera river and Delta, Catalonia, Spain**

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On January 23th, the Campus of Natural and Cultural Heritage of the University of Girona, the Centre for Advanced Studies of Blanes (Consejo Superior de Investigaciones Científicas) and the platform SOS Costa Brava organized a conference to introduce geoethics in relation to the regression and disappearance of sandy beaches in Catalonia. This issue has a significant social and economic significance since sandy beaches support a tourist economic sector which attracted almost 20 million tourists last year (Institut d'Estadística de Catalunya, IDESCAT. Dades turístiques 2019). In the Catalonia Mediterranean coast regression is mainly due to the accumulative impacts of upstream dams retaining sediments, marine structures blocking sediment redistribution (sport harbours and marine

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breakwaters), and urbanization of coastal dunes and back shores (According to Pintó & Garcia 2016, over 90% of the coastal dunes of Catalonia had been destroyed or deteriorated by urban developments during the last 50 years), coupled with intensification of winter storms and sea level rising linked to the climate change (According to the Laboratori d'Enginyeria Marítima & Centre d'Investigació dels Recursos Costaners de la Universitat Politècnica de Catalunya, 75% of the sandy beaches are eroding and the average values of annual erosion are calculated at 1.7 m/year). Because of these impacts, only 25% of the Catalonia's coastal habitats are in favorable conservation status (Generalitat de Catalunya. Departament Territori i Sostenibilitat 2019, *Avaluació de l'estat de conservació dels hàbitats d'interès europeu 2013-18*).

The impact of the Gloria storm that strongly hit the Spanish Mediterranean coast during 22-24th January, obliged to postpone the event to March 5th and 6th. A few days before, a group of scientists had subscribed to the 'Manifesto for the Tordera' (Tordera is a small river flowing to the Mediterranean, 80 km northeast of Barcelona. It is one of the few rivers without dams in Catalonia. The Tordera ground water feeds the heavily populated coastal areas of Maresma), which proposes a number of detailed actions to be put in place in order to improve river and coastal management.

During the conference attended by over 50 public officials (municipal technicians), researchers and experts from different fields, six scientists discussed how could geoethics invigorate the Table of the Tordera Delta and the lower Tordera river. The Table of Tordera is a civil society platform, created two years ago, that discusses governance issues, to move on shared values, before undertaking hasty reactive and reckless actions leading to human interventions on the territory. For the first time in this context the contributions under a geoethic's perspective were discussed, both theoretically and in practice, during a participatory workshop, with some of the main local stakeholders.

But what do we mean, in this particular context, when we talk about geoethics? Geoethics brings an emerging perspective linked to the interaction of human activity with the physical world, in general, and with the practice of Earth sciences in particular, reflecting on the values with which humans relate to the geosphere (For a complete definition see: [Di Capua G. and Peppoloni S. \(2019\). \*Defining geoethics. Website of the IAPG - International Association for Promoting Geoethics\*](#)). Geoethics promotes the ethical and social roles of scientists in conducting research practices and technological applications, as well as recognizing the duties and responsibilities that humanity has toward the earth system that sustains living matter. This perspective involves a different way of managing the georesources such as water, soil and minerals not only from

a utilitarian view but also taking into account the interaction between water, rocks and atmospheric cycles, as a whole that generates and sustains the biosphere.

Thus, our rivers, our mountains and our beaches, our lakes, sustain human communities, which highlights the intrinsic value of the geosphere in an inseparable relationship that generates cultural identities. We can remember that particular place, that corner of river where I was fishing in my childhood, that forest where I walked with my partner, or that summit that I climbed in my youth. These forests and meadows the sea, the rivers or the beaches are permeated with experiences of ourselves and our ancestors, and constitute our identities. Those places are living part of our history and ourselves, they were there when we were born and raised and will eventually see us die and return to earth. Geoethics considers that there are deeper intrinsic or spiritual values- that link us with the land we inhabit, which is not inert, but alive and dynamic, and as such never ceases to interact with us.

Geoethical dilemmas can get us stuck in the endless debates on what should be done or not. Beyond that, however, there is the delicate questions of governance: who decides to do what and how rules are framed and legitimated. Good quality governance involves more transparent and participatory institutions, as well as more truthful, clear and accessible information for decision-making, which refers to ethical or moral principles. Indeed principles guide us in what we should do, but they do not tell us why. The deepest reasons must be found in ourselves, at the core of our relationship with nature, which is never independent of our relationship with others fellows.

The global environmental crisis we are immersed in is also a social crisis strongly related to a type of development that fosters unsustainable - destructive - rhythms of exploitation of the natural resources on which we all depend. The same values that inspire the relationship with our human fellows define our relationship with the geosphere.

Any significant intervention on the geosphere has effects at different levels and timescales on other humans. If we decide to make a dam or a desalination plant, if we want to make an environmental intervention on the beach for tourist use, such as replenishing sand extracted from adjacent sandy marine bottoms, or if we decide to protect a natural area of interest, we do it guided by certain values that are rarely explained. Often an attitude in line with the shared values involves a social cost, i.e. a "price to be paid". The social cost is the price of the responsibility by sharing the burdens when we make decisions, a kind of social and environmental solidarity: the extent to which we are willing to sacrifice of our 'consumerist' economic model for the sake of the common good, of

present and future generations.

How can we promote this shared responsibility? How can we foster a dialogue of values that helps identify those of us who agree, to jointly build a social and environmental fair vision of the future, that is, adapted to the reality of natural cycles and rhythms? How do we imagine the landscapes, beaches, rivers, meadows or forests of our land for our children and grand children, for generations to come?

How should we pass on to our children and adolescents the testimony of the wisest and most inspiring values and memories we have received from our ancestors? Beyond the dialectics of winners or losers, a dialogic dialogue may reconcile us to others and to our land when we recognized them. It is about our roots, with the conviction that our values are not absolute, but only part of the truth, which can be enriched by the truth (or values) of others, and thus foster the growth, as a society, in order to respond to increasingly complex and difficult environmental challenges.

Finding the fragile balance between utilitarian and deeper -or intrinsic- values, those that give meaning to who we are as a person, or as a people, is not a simple task. When the ethical dilemma arises, how can we move towards environmental and social justice, with a deeply humble attitude of appreciation for what has been bestowed on us? Geoethics invites us to have a more respectful attitude towards the Earth and to life: to look around and to be amazed, to wonder, because everything is a wonder, as the medieval Catalan philosopher Ramon Llull taught appreciating everything we have received, with an attitude of reverence and deep gratitude.

The road is long and filled with traps. It is not easy to move forward, because it has to be redone, over and over, every time we realize that we -as individuals or society- have made a mistake. Humbly, we need to be able to relearn from personal and collective errors, which may be very significant during the last decades, with a critical vision that helps us identify what is really important, promoting discernment as a virtue. It will be the Earth, Mother Nature, and not us who will have the last word. And this decisive fact should makes us to rethink ourselves giving a new meaning to the Catalan anthem that we are "defenders of the Earth."

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