Fisher´s knowledge and governance: some general reflections

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"They never ask our opinion! They take decisions in their offices and have no idea how fish look like!"
(Nelu, Danube Delta fisherman)

15 October 2009. It has been six months since I am in the Danube Delta doing fieldwork for my PhD thesis in anthropology. I am studying the human-environment relationship and the conservation of natural resources in a protected area: The Danube Delta Biosphere Reserve. It took me some time to be accepted by the local community, establish a trust relationship and have the opportunity to speak and discuss with them about the problems they were facing and the conservational and management issues encountered at local level.

"Are you still here?!", "You're leaving tomorrow, isn't it?", "What are you looking for at the fishers' meeting point?! The beach is on the opposite side!", "Are you a journalist?", "Do you work for an environmental NGO?" These were the questions I was addressed for a period of approximatively three months. It was quite strange for the inhabitants and especially for the fishers to have someone that daily was interested in their activities, asking many questions about fishing techniques, local management and conservation practices, traditions, tourism development and expressing the will to go fishing with them. I was a "professional stranger" (Agar 1996) and my presence in the village and questions were somehow disturbing the normal course of people's lives.

"Why do you want to know all these things? No one is interested in what we are doing here! The government officials know only to dictate rules and promulgate laws, protect nature and pelicans and control if we are following their measures! However, you know, bad rules are made to be broken! They [government officials] never ask our opinion! They take decisions in their offices and have no idea how fish look like!" (Nelu, Danube Delta fisherman)

This last sentence made me think a lot. As we know, great part of the scientific literature concentrates on the topics of governance, natural resources conservation and communities (Carrier, West 2009, West 2006, Orlove, Brush 1996) and several management and conservation questions have been raised. How are scientists supposed to act? In which manner? Should we take into consideration local communities and interrogate their views and perceptions? Is it possible to "govern nature" (Selmi, Hirtzel 2007) by giving rules that are imposed from the "high sphere" and are expected to be adopted by local communities? Or is it the nature that is governing us? Are fishers mere executors of rules or can they be co-creators of new management knowledge? Nonetheless, of what kind of rules and regulations are we speaking?

Judging by what the Danube Delta fishers told me, we deal with rules that have been planned for rather than planned with. All this in the context of coastal communities was neglected, for too much time, in the planning for conservation and management of protected areas.

At a first glance, it seems that everything is dictated by a "culture of conservation" (Rettie 2009: 66) that does not take into consideration peoples and their needs and where there is no dialogue and communication. But, dialogue is essential for the local and regional sustainable development and local communities should be accorded the right place and active role. Moreover, their knowledge but also their resilience should be used in the creation of management practices. Unfortunately, sometimes we deal with "imported solutions to hypothesized problems" (Geoghehan 2009: 113) that are not adapted for each context, be them connected to fishing bans or denied access to protected zones.

Figure 1. *Fisher explaining the use of one fishing techniques practiced for the Pontic shad fishing (ro. "setca"). Credit: Georgeta Stoica, 2013*

Figure 2. Fishers at the fishing collecting point (ro."cherhana"), Danube Delta, Romania. Credit: Georgeta Stoica, 2008

In different case studies and regions in the world, attempts have been done in order to put the basis of a framework for participative governance in relation to the management of natural resources in pursuance of suitable solutions for the conservation and protection of resources or management of marine protected areas ruled by the communities. In some cases, it worked in others not and usually the ("negative") outcomes were connected to the conflict concerning the access to natural resources and the lack of empowerment. The effort to include fishers' knowledge and their perceptions and representations of the environment in management practices was considerable but at times, the different stakeholders were not speaking the same "language" and wrongly, it has been said that fishers' knowledge was not of "scientific interest" opening in this way a huge gap between scientists, fishers and policy officers.

But how can we reduce the likelihood of conflicts connected to the access to natural resources and their management if fishers' knowledge is erroneously considered to be "marginal" and not "so interesting"?

Through exchanges, interviews and conversations with fishers, their knowledge can be applied for designing management plans considering also the present and past social and environmental conditions. Just to give an example, fishers' knowledge on fish migration, seasonality, different fishing places might be useful for the analysis of stock assessments; data concerning fishers' annual catches might inform about the ongoing changes; or fishers can give information about fish behaviour, spawning locations, larvae and juveniles, fish diseases. All these data can be analysed at a scientific level and then processed in collaboration with the local communities for the implementation of measures that sometimes, considering the "accelerated changes" (Eriksen 2016) of the society and of the environment, demand the implementation of immediate measures.

The urgency of management measures and policy decisions

Take urgent actions to combat environmental degradation and species extinction.

It is urgent! It is vital! It is imperative! How many times haven't we heard discourses on the urgent actions to be taken by the local governments or decisional institutions? All this in a very short interval, that didn't offer too much time for the implementation and for a right consideration of different points of view and especially without taking into account local communities.

As we know for doing research, we need time and the amount of time can be different from one discipline to the

other with considerable differences between social and natural sciences. The questions to be addressed in this case are: How scientists answer to this urgency and how do they contribute with their studies to the good implementation of rules? How can we "translate" the "scientific knowledge" and render it readable to the eyes of the people implied in the setting up of politics? In this sense, scientific expertise is essential for the putting up into practice of politics but the main point resides in the capability of "translating" in simple way "complex" concepts by means of synthetic documents.

This would not be complete without including "fishers' knowledge" and representations about nature and conflicts concerning nature management. The solution to the different environmental problems and the need of urgent actions is to be found together by implying the different stakeholders in participatory approaches and by using a citizen science approach. For doing this, fishers have to be empowered and trust relationships have to be created. One of the objectives would be to integrate fishers' knowledge to survey data and scientific knowledge in order to understand the environmental and cultural changes. This could also empower fishers to participate in decision-making and could bring together fishers, fisheries managers and scientists. Moreover, this could help to share experience and knowledge between different countries but will also help to identify and analyse problems and plan solutions based on fisher's knowledge by mobilizing their knowledge to improve fishers´ management.

For coastal communities, fishing has been a vital part of people's life for generations and their knowledge about fish behaviour, fish species migration, feeding, conservation, fishing techniques, will be useful not only for natural scientists (biologists, geneticists, etc.), social scientists (anthropologists, sociologists, economists, etc.) but also for management of decisional institutions.

Useless to say that time is needed for scientific research, local communities' involvement by creating moments of attentive listening, sharing of information that might be innovative in terms of management and policy measures and decisions but also for the education of future generations.

Final remarks

I would like to finish this short reflection with one question that I was addressed when presenting to the Danube Delta inhabitants the results of my PhD research: "Did you find a solution for our environmental and conservation problems?" (Valentin, Danube Delta inhabitant).

Figure 3. *Danube Delta fishers during the Pontic shad fishing season. Credit: Georgeta Stoica, 2008*

It was hard to give an answer to such a problem especially when you are expected to help with your studies and propose solutions that might have repercussions at a local level. I do consider these solutions can be found in interdisciplinary research approaches.

Interdisciplinary research has never been easy and by definition, it integrates perspectives and methods from two or more disciplines. Excellent scholars and talented leaders are needed for the integration of the research work but this has to be accompanied by a solid knowledge of each discipline involved in a fertile dialogue. A dialogue that implies a deep change of the research objects and theoretical frameworks. In order to succeed in the research process, it is essential to use a common frame of reference, shared theoretical tools, and a rigorous "technical" language.

In this participatory approach, everyone needs to interact with each other in order to understand what happens by encouraging discussions and changes between the different actors. In this way, the survey will take place in a "permanent research laboratory" involving local communities, social and natural scientists. Thus, the research is not a model of top-down intervention, but a discussion and exchange between the different stakeholders about human-environment relationship and nature protection that integrates the questions and needs of the society into research and provide feedback from research to the society.

Only in collaboration with local communities a better understanding of fishers' perceptions and cognitions can be established and their needs integrated so that new information can be provided and used in fisheries management which accounts for the requirements of nature protection. Of course, this can be done in a common effort and reciprocal dialogue and trust between social and natural sciences, fishers and policy officers.

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News and Notes

EcoManAqua – A CEEPUS network fostering mobility of students and university teachers in the Danube basin

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An EU-project funded under FP7 (DANCERs) identified major short comings in joint university education programs related to integrated river basin management (Irvine et al. 2016). In particular, a coherent network related to training in aquatic sciences, water management and sustainable development in South East Europe is lacking. Following this conclusion, a group of scientists from Central, Eastern and South Eastern Europe got active and established the network "Ecology and Management of aquatic ecosystems in Central, East and Southeast Europe" (Acronym EcoManAqua). EcoManAqua was accepted as umbrella network by the program CEEPUS, the Central European Exchange Program for University Studies. CEEPUS is an international exchange program which provides mobility grants for university students and academic teachers among member countries in Central and Eastern Europe and the Balkan Peninsula. It is the product of an international agreement signed by the member states of CEEPUS.

The network comprises 15 universities from 11 countries out of which 10 are situated in the Danube River Basin. Apart from the University of Natural Resources and Life Sciences Vienna which acts as coordinating institution, these are relevant faculties from the University of Sofia, the Jossip Juray Strossmayer University of Osijek, the University of Zagreb, the Palacký University Olomouc, the University of Bucharest, University of Belgrade, University of Ljubljana, the University of Agricultural Sciences and Veterinary Medicine of Cluj-Napoca, and the Dunarea de Jos University of Galati. The University of Tirana, the University of Montenegro in Podgorica, the Charles University in Prague and the University of South Bohemia České Budějovice as well as the Warsaw University of Life Sciences are located in adjacent river basins.

The motivation to establish a network in interdisciplinary aquatic ecosystem sciences was (1) to address major challenges related to the alteration and modification of aquatic ecosystems such as rivers, wetlands, lakes and coastal waters, (2) to address the interplay with human