
18/10/2023: INLAND AND FRESHWATER AQUACULTURE WORKSHOP

Questions and comments

***Q1- Opinions regarding the production systems:***

- convey the possibility of aquaponics in urban areas (ex: success story from New York City involving rooftop mapping using GIS. An investor obtained all the permits for rooftop gardening and later sold them to farmers.)

- the need for clearer specifications regarding marine species cultivated in land-based RAS systems. The importance of including marine RAS systems for shrimp and other marine species in a dedicated chapter that covers freshwater and marine species.

- aquaponics, as a production system, should be included as a form of RAS m(ex. in Israel and island states where vegetables are expensive).

- need to correct terminology, particularly regarding residence times for different species. He raised questions about where semi-intensive carp farming should fit in this categorisation.
- **AAM** explained that the carp is mentioned in the "Extensive aquaculture and manmade wetlands modelled by pond aquaculture" section, while the trout and brackish species are included in the "Earthen ponds and raceways using flow-through systems" section. All systems are based on the examples of the factsheet. They are open to suggestions for a better rearrangement. They would consider adding "semi-intensive" to the "Extensive aquaculture" section.
- suggested using the less limiting term "pond aquaculture".

***Q2- Agreement with the topics and challenges presented and what should be further explored:***

- stressed that the biggest problem at the moment is to obtain water rights and new licenses. The European Water Framework Directive (WFD) is limited from a practical point of view. He highlighted the need for new RAS and semi-RAS systems.

- every food production system has an impact. He called for a level playing field for aquaculture, similar to agriculture, where a certain degree of pollution is publicly accepted.

- urgency of discussing integrated water resources management and understanding the upstream and downstream effects of aquaculture farms.

- need to divide the term "space" into "physical space" (where would a farmer place their farm) and "environmental space" (space for the emissions of nutrients into the water stream and then to the sea).

- the animals living and raised in an area should be taken into consideration as well, and whether they should be removed or not.

- whether the aquaculture management areas should be mentioned in the “Access to Space” document. There should be a clear division between the measures, tools, ideas dedicated to existing farms and the ones dedicated to the planned new facilities to be developed. She underlined the importance of time durability of the access to water and mentioned (In PL the access to water for intensive aquaculture is max.10 years. Problem for the balance of investment/time for farm development.)
- the list of topics is confusing as it appears to mix tools, objectives, and constraints.

- the scarcity of the term “energy”. Excluding access to renewables would limit the utility of these background documents, in his opinion. He also stressed the importance of considering access to energy resources, as the stability and cost of energy are essential for investment planning.

***Q3- River Basin Management Plans (RBMPs):***

- the main objective in DK is to reduce the emissions of nutrients, specifically nitrogen, to achieve the objective for a good environmental status. As only the emissions from the existing freshwater aquifers are taken into consideration, establishing a new fish farm in Denmark is very challenging.
- similar issue in IT, related to the minimum ecological flow which was established by the WFD. It is based on the flow that the rivers had in the 1980s and the 1990s, and due to climate change and other factors, rivers have lower flows. As a result, the aquaculture farms must work with less water, and there is no increase in the farms in freshwater.
- Spain faces similar problems with the ecological flow due to droughts. Given the complexity of the problem, a new strategy is being developed, no longer solely coordinated by the Ministry of Environment but based on the collaboration of diverse entities.

- the existence of the aquaculture sector [in rivers] must be defended, along with consideration of its environmental impact

- lack effective river basin management plans due to the miscommunication caused by the allocation of water management to different ministers from time to time.

***Q4- Collection of additional good practices: European GIS applications that show available sites for inland and land-based freshwater aquaculture and new aquaculture sites in estuaries:***

- the issue of licensing, pointing out that in most countries, there are no specific areas dedicated to inland aquaculture.

- in Spain there are no dedicated areas, but they are searching for areas that are less exposed to drought due to climate change. Nevertheless, authorising new facilities though remains difficult.

- GIS system will not encourage investors because of the environmental laws, including the WFD, and the different federal laws that render the process complicated. He stressed that having aquaculture in a country is also a matter of political will, (ex. Lake Constance, a drinking water reservoir that would never receive consensus for fish production).

- There is a conflict due to the use of the water. For ex, it is not possible to have flotant photovoltaics in reservoirs or water that is mainly for irrigation. Another issue arises when the WFD must be applied at a regional level, as in the case of Po River with its five regions having a different management approach. As such, he suggested a more uniform approach at least at a MS-level.

- due to the climate issues, there high runoff in some seasons of the year and very low water runoff in others. Moreover, there are plans for storage of water for agriculture. This can be seen as a potential for a more integrated landscape management, an opportunity for the future.

- there is still a very negative perception of aquaculture in some regions due to a lack of public awareness and training. A project may be abandoned if the general public and NGOs are involved. She stressed the importance of disseminating regulations, as well as the interests of aquaculture, so that it is no longer seen as yet another source of pollution.

- praised the “Farmed in the EU” campaign but suggested a focus on aquaculture production to address misconceptions. In Germany, he is very often asked by journalists if he is pro or against aquaculture, which is not a question that applies to agriculture.

***Q5- Collection of additional good practices: nature restoration activities:***

- a significant part of Poland’s aquaculture sector is focused on the production of stocking material (trout, salmon) combining nature restoration.

- IT uses the ecosystem service, as provided by Article 54 of the regulation of EMFAF, in regions such as ponds and lagoons to restore dams that also provide biodiversity. This promotes the survival of valliculture

- LT is also involved in the stocking activities. Next year, they intend to restock predatory fish, such as pikes, in lakes where no predatory fish increase pollution. Also, he referred to a 2011 project in Portugal that involved the closed recirculation in an oligotrophic lake, where all waste went into the inland. Similar initiatives were undertaken in China in 2014.

- the BE project repurposes the old fish auction facility as a central incubator for various small start-ups. It provides these start-ups access to centrally marine seawater, which they can use for their own benefit. This can also be applied to freshwater.

***Q6- Collection of additional good practices: multifunctional approach inland aquaculture with agriculture:***

- recommendation for a change in legislation so that sludge from land-based aquaculture will be recognised as manure to be used on agriculture.

- SE successful example of synergy between inland aquaculture and agriculture. He mentioned the Gårdfisk company, a franchise business that contacts farmers in search of unused space and helps them to establish an aquaculture system (e.g., farming tilapia). The company then purchases both the finished aquaculture products and the resulting manure. In Germany there

have been numerous negative examples, mainly due to the disparity between the required expertise for fish farming and the skills of farmers.

- recommended that the application of the principle of industrial ecology and symbiosis with other sectors could be a good way to frame this part of the document.

- It would also be beneficial to provide a perspective on good practices that could take place once some of the objectives of the Green Deal would be achieved (hydrogen economy). The intensification of aquaculture production requires not only more space but more energy and less primary resources. This application of circularity might prove more effective than integrated multi-trophic aquaculture (IMTA) or aquaponics.

- from a legislative standpoint, aquaculture is considered a part of agriculture in Poland, which facilitates their symbiotic relationship.
- scepticism about whether this multifunctional approach needs to be in the document. In Croatia, carp ponds are used for combined activities with their primary aquaculture function (visits related to nature protection, bird watching, etc.), but not relevant to the document's focus.

- the cause of the problem does not appear to be the non-availability of financial resources. Instead, the difficulty in financing stems from very specific factors related to aquaculture, such as the timing for licenses which discourages a lot of investors, and the long-time of ROI.

- currently, only big multinationals can afford to take over an aquaculture facility because of the licensing time and ROI.

***Q7- Special assessment that permit inland or land-based aquaculture in protected areas that may not be entirely natural, as well as the adoption of good practices in lakes, water reservoirs or dams:***

- HR mentioned two semi-intensive carp ponds in nature parks, included in land areas, that must follow stricter rules.

- for protected areas, approximately 40% of the Spanish aquaculture activities take place in Red Natura. (ex. La Palma, in Doñana National Park). Therefore, more work is needed to enhance the integration of aquaculture in protected areas.

- Spain is also conducting carrying capacity studies for the possibility of new project in these areas.

- alongside the trout farms that support ecological fauna and flora, there are also valliculture practices and extensive ponds. Some of these ponds date back to the 15th century, all in Natura 2000 areas, and hold cultural heritage significance. In some cases, they offer organic production (e.g., organic sea bass).

- fish farm in Germany where the owner wanted the visitors to promote the possibility to kill otters. He raised the issue of predators and stressed that nature is not always the nature people want.

- many aquaculture companies were established in Natura 2000 before Natura 2000 existed. This makes the development of aquaculture very complicated today, especially in the French basins.

***Q8- Code, standard or public certification that can be adopted.***

- mentioned the topic of the document itself, which she considers a good administrative tool, and multifunctional aquaculture along with certification schemes that create social acceptance. “Our trout” programme is Poland’s main marketing tool to achieve this goal.

- the 1305-2013 regulation in Italy related to the quality regimes for agri-food products, based on the three pillars of sustainability, environmental, social and economic (in IT at least 50% of the sea bass and sea bream production).

- scepticism about the role of certifications. In France old aquaculture marmers, who are already established and who have their practices, have evolved and become even better over time compared to the new ones who may have these certifications. She wondered if certifications will create disparities in the aquaculture sector.

- rather than solely working on certifications, efforts should be directed toward shaping public opinion and making people aware that the aquaculture sector is already operating sustainably.

***Q9- Projects aimed at addressing extreme events (***due to climate change, certain spaces that are now potential spaces for aquaculture, perhaps in five years' time they will not be there any longer. Forward-looking issues required)

- the importance of the temperature rise and also the change of production systems from flow-through into semi-recirculation systems, and the need for technical solutions (co-use of solar energy, etc.).

***Q10- Any measures to improve the sector in general:***

- the pressing need to talk about predator control, a general problem that might require a separate document, given its international dimension.

- Although beavers are being promoted as a beneficial species for water management, they are also a serious threat to the functioning of a farm.