

River water quality deterioration admits the booming export flower business in the Pisque watershed in Ecuador



Research on export flower production in Ecuador has shown that large national and multinational flower producers overuse and contaminate water while obtaining sustainability and fair trade certification labels. At the same time, about six hundred small rose producers do not have direct access to the export flower market and suffer from high financial risks and exploitation. Many workers lost their jobs in the big flower companies due to the Covid pandemic

that halted the export of flowers. Hundreds of those workers decided to start their own small rose greenhouse. This resulted in an enormous “boom” of small greenhouses, now accounting to over a thousand, each time higher up in the mountains surrounding the “flower” towns of Cayambe and Tabacundo.

A major effect of the booming flower business is the deteriorating water quality of the small brooks and rivers in the area due to effluents from both flower greenhouses as well as untreated wastewater from the villages and towns in the rose producing area.



Ten training workshop were held with communities and schools to monitor river water quality by inventory of benthic macro invertebrates. These

small animals can be caught with a simple net, detected by the naked eye, and give an indication of the water quality. The results were appalling: upstream of the villages and greenhouses the water was crystal clear and drinkable, downstream very little macro invertebrates were found, implying a ‘dead’ river (see map and Table 1).



Many of the small rose producers suffer from high financial risks and exploitation because of the high debts and dependency from intermediaries and large flower companies to sell their roses for export. Many of those arrangements are informal, which makes it very difficult to obtain fair trade certification. One association of small rose producers with about twenty members does have its own rose packaging facilities and sells directly to so-called flower brokers, or flower exporting companies. This shows a formal association of small producers is possible and could open the way to fair trade certification. In principle,

fair trade labelling and environmental monitoring could increase social justice and reduce the environmental impact of flower production in the fragile Andean Mountains.

A major discussion among the rural population of the area is if scarce irrigation water should be used for food production (of subsistence and the local market), or also for export flower production. The last decade has seen a shift from pro-food to pro-flower discourses. Notwithstanding the risks of the use of pesticides for human health and high financial risks of flower production an increasing part of the population supports the use of irrigation water for export flower production.



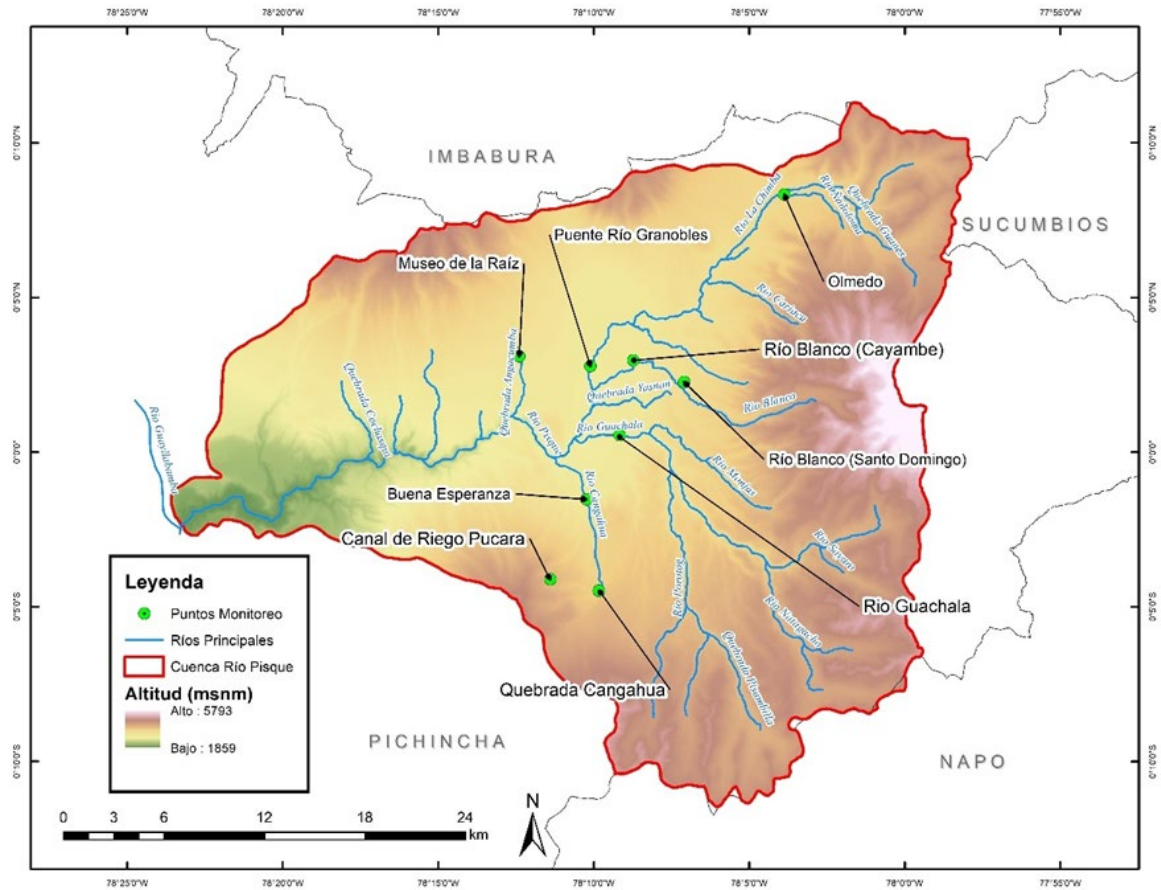


Table 1.- BMWP/col index for the monitoring points of the Pisque river basin for the April, September 2022 and March 2023 campaign.

Sample point	Description	Date	Species found	BMWP Index	Water quality
1	Río La Chimba	30/04/2022	318	38	Moderate
2	Río Blanco (Cayambe)	30/04/2022	8	13	Bad
3	Río Blanco (Santo Domingo)	30/04/2022	9	13	Bad
4	Río Granobles	30/04/2022	0	0	Dead river
5	Quebrada Angacumba	01/05/2022	7	13	Bad
6	Río Cangahua	01/05/2022	477	28	Contaminated
7	Quebrada Cangahua	10/9/2022	742	37	Moderate
8	Pucará	10/9/2022	11	10	Bad
9	Guachalá	10/9/2022	2	11	Bad
10	Guachalá	18/03/2023	7	13	Bad

This research was executed by Jeroen Vos (WRM, WUR), Patricio Mena (WUR, Ecociencia) and Jorge Celi, Andrea Llumiquinga, Alex Gualli and Bryan Rosero from IKIAM and financed by a grant from the NWO (The Dutch Research Council), called "Organisation of fair trade flower production with small rose producers in Ecuador" (Project number 481.20.126).

