**EEA Agriculture report, consultation on a composite pressure index:**

*Replies from NIVA (NRC for Norway)*

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| **Question** | **Answer** |
| 1. Do you think it is useful to establish a composite multi-pressure index of agriculture on water at pan-European scale? | Yes, important to establish such an index to get an overview of the total agripressure in Europe’s waters. But the total index should be tested against the status of water bodies. The overall index may be problematic to use as a basis for measures, as they are pressure specific. There is a risk that the major part of the agri-pressures in most of Europe which is nutrient pollution is hidden by the other pressures. The same can be said about the water abstraction, which is very important in the Southern areas, in particular. It is more informative to show the results for each of the single pressures.  |
| 2. Do you think the methodology used is appropriate for this type of analysis (regarding broad European agricultural regions delineation and definition of the composite multi-pressure index)? | 2a) Cannot evaluate the BEARs, but the approach seems good concerning the agri-categories and the spatial resolution. However, I miss phosphorus input, which is very important as a steering factor in eutrophication of lakes in Europe, as well as in many rivers. Phosphorus input (e.g. phosphorus application rates) should be added as indicator of management intensity (as described in chapter 2.2.). 2c) For the definition of the composite index, I miss total phosphorus in the nutrients part of the pressure index. Total phosphorus is the main limiting nutrient for algal blooms in lakes and Tot-P loads from agriculture must be reduced in order to succeed with restoration of eutrophied lakes across Europe. 2d) I also miss the aspect of siltation /increasing turbidity/decreasing water transparency as a pressure coming from erosion of agricultural soils. That pressure has a negative impact on aquatic flora (pelagic and benthic) due to light limitation of primary production and is likely to cause reduced biodiversity and a shift from autotrophic to heterotrophic food webs, increasing the risk of oxygen depletion. Siltation pressure is likely to increase with climate change due to increased frequency of extreme rain events/flash floods.2e) Concerning the toxic pressure from pesticides, the method is less clearly described, and the results less convincing. How does the daily predicted environmental concentrations of pesticides compare to real life monitoring data of pesticides? The map in figure 4 showing the acute toxic stress level exceeded at 4 days per year is likely to be a worst case, especially if the predicted concentrations are higher than the actual monitored concentrations.  |
| 3. Can you agree with the results of the multiple pressure analysis in your country (in general, and in detail regarding specific areas)? | There are no results for Norway (not sure why), concerning the different agricultural categories (figure 2), nor in the N-surplus map in figure 3. However Norway is included in the pesticide map in figure 4, in the hydrological map in figure 5 and in the floodplain map in figure 6. The results for Norway on water abstraction for irrigation seem overestimated compared to Sweden, because Norway has a wetter climate than Sweden. The floodplain map for Norway seem underestimated, as most of Norwegian agriculture occurs in floodplain areas, especially in the South-Eastern and mid-Norway areas. Due to the gaps in data for Norway the multipressure index could not be calculated in figure 11, which is a pity. There is intensive livestock production in South-Western Norway, causing massive nutrient pollution in that area, but this is not seen in the results.  |
| 4. How could such an analysis be subject to regular updates, and at which frequency? | Agri-pressures reported with the RBMPs for each water body could be used as a basis for updating the index once every six years. WISE SoE data for nutrient emissions, nutrient concentrations (N&P), pesticide concentrations and water abstraction (WEI) could be considered for more frequent updating of the multi-pressure indicator to allow trends to be calculated.  |
| 5. What further information could be included to support or improve the analysis? | Total phosphorus (WISE-6) and water transparency/suspended solids (WISE-6 or WISE-WFD status for the QE water transparency conditions) should be added. |