Amsterdam, 3 November 2026

OPEN LETTER

# Request to include nitrate in drinking water quality guidelines review (5th edition)

To the World Health Organization Secretariat and the Guideline Development Group for Drinking Water,

We, the undersigned coalition of environmental and health organizations, request that the WHO include nitrate in its upcoming review of the Guidelines for Drinking-water Quality (5th Edition).

## Background and evolving science

The foundational logic of the current WHO maximum acceptable level for nitrate in drinking water (50 mg/L as nitrate or 11.3 mg/L as nitrate-nitrogen) dates back to 1958. This benchmark was established primarily to protect infants from acute methemoglobinemia ("blue baby syndrome").[i] While this protection remains essential, the maximum acceptable level has not been updated in response to robust epidemiological evidence linking chronic, low-level nitrate exposure to long-term human health risks – most notably colorectal cancer and adverse birth outcomes, including pre-term birth and low birth weight.[ii]

Recent large-scale population studies demonstrate that these health risks manifest at concentrations significantly below the current 50 mg/L limit.[iii] Recognizing this evolving science, a member state government (Denmark) has this year pledged to lower its national nitrate limits following an independent expert panel review.[iv] This regulatory shift creates a misalignment between global guidelines and national health policies.

Globally, surface water models indicate that hundreds of millions are exposed to elevated nitrate levels.[v] This widespread risk reflects the reality that human activity has severely transgressed the global planetary boundary for nitrogen[vi], making source-level control a critical imperative for both public and planetary health.

## The case for "co-benefit amplification" in the prioritization of contaminants for review

Because removing nitrate at treatment plants is both energy-intensive and cost-prohibitive for many communities, contamination must be addressed at its source.[vii] Establishing stricter global guidelines for nitrate could act as an upstream lever to curb intensive livestock practices and synthetic fertilizer use, yielding compounding co-benefits:

- **Public health:** Upstream source protection could also reduce other types of pollution from agricultural runoff – including pesticides, antibiotics, and pathogens[viii] – thereby reducing the need for treatment, which could mitigate the formation of harmful disinfection byproducts (DBPs).[ix]
- **Climate resilience:** Decreasing synthetic nitrogen application and herd density directly cuts greenhouse gas emissions (including nitrous oxide and methane)[x]; ecological farming methods improve soil moisture retention and aquifer resilience against severe drought.[xi]
- **Ecosystems:** Limiting nutrient runoff reduces freshwater eutrophication and aquatic dead zones[xii]; encouraging a transition to ecological farming methods supports biodiversity.[xiii]
- **Nutrition:** Standard shifts signal a necessary broader transition toward plant-rich diets, addressing non-communicable diseases such as cardiovascular conditions and obesity while lowering the environmental footprint of food systems.[xiv]

## Recommendations

As the global authority setting drinking water benchmarks, the WHO's guidance profoundly shapes national legislation and health outcomes worldwide. We respectfully request that the WHO Secretariat and Guideline Development Group:

1. Formally include nitrate on the priority list of chemical contaminants for full evaluation in the 5th Edition of the Guidelines for Drinking-water Quality.
2. Conduct a comprehensive systematic review of epidemiological evidence regarding long-term, low-dose exposure to nitrate, with particular focus on oncological and reproductive outcomes.
3. Adopt a holistic risk framework that considers source-water protection and systemic co-benefits within the WHO Water Safety Planning framework.
4. Promote equitable implementation by calling for international support for low- and middle-income countries to ensure chemical safety efforts complement, rather than displace, vital investments in microbial safety and basic sanitation.

# Respectfully signed,

## SIGNATORIES

| | | |
|---|---|---|
| 01 | | Greenpeace |
| 02 | | IPES-Food (International Panel of Experts on Sustainable Food Systems) |
| 03 | | WONCA (World Organization of Family Doctors) |
| 04 | SOCIEDAD ESPAÑOLA DE EPIDEMIOLOGÍA | Sociedad Española de Epidemiología (SEE) |
| 05 | | European Environmental Bureau (EEB) |
| 06 | Friends of the Earth Europe | Friends of the Earth Europe |
| 07 | BirdLife EUROPE & CENTRAL ASIA | BirdLife Europe |
| 08 | MIGHTY EARTH | Mighty Earth |
| 09 | | IFOAM Organics Europe |
| 10 | Pesticide Action Network Europe | Pesticide Action Network Europe |
| 11 | | ProVeg International |
| 12 | | ISDE Italy (International Society of Doctors for Environment) |
| 13 | ACP | Associazione Culturale Pediatri (ACP) |
| 14 | caring doctors | Caring Doctors |
| 15 | An Taisce The National Trust for Ireland | An Taisce (The National Trust for Ireland) |
| 16 | OraTaiao Aotearoa NZ Climate & Health Council | OraTaiao (Aotearoa NZ Climate & Health Council) |
| 17 | | Læger for Klimaet (Doctors for Climate) |
| 18 | Corporate Europe Observatory | Corporate Europe Observatory (CEO) |
| 19 | | Danmarks Naturfredningsforening |
| 20 | | Deutsche Umwelthilfe (DUH) |
| 21 | | ECODES (Fundación Ecología y Desarrollo) |
| 22 | | Ecologistas en Acción |
| 23 | | Natuur & Milieu |
| 24 | Natuurmonumenten | Natuurmonumenten |
| 25 | | Oxfam Denmark |
| 26 | | Agroecology Europe Association |
| 27 | CCOO | CCOO PV (Confederación Sindical de Comisiones Obreras del País Valencià) |
| 28 | | UGT PV (Unión General de Trabajadores del País Valenciano) |
| 29 | | Animal Advocacy & Food Transition |
| 30 | | Safe Food Advocacy Europe |

## SIGNATORIES, CONTINUED

31 A Rente do Chan

32 ADENSVA – Asociación para la Defensa de la Naturaleza al Sur de Valencia

33 ADEPRU – Plataforma en Defensa del Río Ungría

34 Aigua és Vida

35 Amigas de la Tierra (Friends of the Earth Spain)

36 ANEA, Grupo por la Defensa de la Naturaleza

37 Asociación Cega para la Defensa del Agua y el Aire (Muñoveros)

38 Asociación Consejo para la Defensa del Noroeste

39 Asociación de Defensa Animal El Casar

40 Asociación de Vecinos de Huete y Pedanías

41 Asociación para a Defensa Ecolóxica de Galiza (ADEGA)

42 Asociación Pueblos Vivos Cuenca

43 Asociación Sitio Biogás Segovia

44 Asociación SOS Ribagorza

45 Asociación Vida Sana

46 Associació de Naturalistes de Girona

47 Associació Hàbitats

48 Associazione per l'Agricoltura Biodinamica

49 CancroRabbia

50 Col·lectiu AiguaClara d'Arbúcies

51 Coordinadora Estatal Stop Ganadería Industrial

52 Ecologistes en Acció de Catalunya

53 Fedehesa

52 Forum Nazionale Salviamo il Paesaggio, Difendiamo i Territori

55 GEPEC-EdC (Grup d'Estudi i Protecció dels Ecosistemes Catalans)

56 Grup de Defensa del Ter

57 Hacendera

58 Ingeniería Sin Fronteras Internacional (ISF)

59 Intersindical Valenciana

60 Italian Water Forum

61 Justicia Alimentaria

62 La Campiña Verde

63 Madre Brava

64 Mamme No PFAS

65 Movemento Ecoloxista da Limia

66 Ni Catas Ni Minas

67 Nordeste Segovia

68 Pañuelo Libre

69 Plataforma por el Agua Pública de Daimiel

70 Plataforma Rural por Cenizate

71 Plataforma Stop Biometano de Manzanares

72 Rådet for Grøn Omstilling (Green Transition Council Denmark)

73 Red-Vandet

74 Repoblación por La Paz en Las Tablas

75 Rete Semi Rurali ETS

76 Sociedade Galega de Historia Natural (SGHN)

77 SOV CGT Alcázar de San Juan

78 Stop Biometano Daimiel

79 Stop Biometano Valdepeñas

80 Terra!

81 Terre Nostre – Coordinamento Nazionale per la Salute e l'Ambiente

82 Unione Nazionale dei Produttori Biologici e Biodinamici

83 Vita XXI SLP

84 Xarxa per a la Conservació de la Natura (XCN)

85 Xúquer Viu

## Notes

- **i** World Health Organisation. (2022). Guidelines for drinking-water quality: fourth edition incorporating the first and second addenda. Geneva. (Link); World Health Organization. (2016). Nitrate and nitrite in drinking-water: Background document for development of WHO Guidelines for Drinking-water Quality. (Link)
- **ii** Halldorsson, T. I. et al (2025). Evaluation of the parametric value for Nitrate in drinking water. Report delivered to the Ministry of Environment and Gender Equality of Denmark on November 24, 2025. (Link); Lin, L. et al (2023). Nitrate contamination in drinking water and adverse reproductive and birth outcomes: a systematic review and meta-analysis. Scientific Reports. 13. (Link); Jacobsen, B. et al (2024). Health-economic valuation of lowering nitrate standards in drinking water related to colorectal cancer in Denmark. Science of The Total Environment, 906, 167368. (Link); Richards, J. et al. (2022). Nitrate contamination in drinking water and colorectal cancer: Exposure assessment and estimated health burden in New Zealand. Environmental Research, 204, 112322. (Link)
- **iii** Chambers, et al. (2026). Nitrate in drinking water and preterm birth: A national retrospective cohort study in New Zealand. Environmental Research, 306(Part 1), 125169. (Link); Schullehner, et al. (2018). Nitrate in drinking water and colorectal cancer risk: A nationwide population-based cohort study. International Journal of Cancer, 143(1), 73–79. (Link); Stayner et al. (2022). Nitrate in drinking water and risk of birth defects: Findings from a cohort study of over one million births in Denmark. The Lancet Regional Health – Europe, 14, 100313. (Link); Sherris, et al. (2021). Nitrate in Drinking Water during Pregnancy and Spontaneous Preterm Birth: A Retrospective Within-Mother Analysis in California. Environmental Health Perspectives, 129(5), 057001. (Link)
- **iv** Danish Prime Minister's Office. (2026). The political platform for the four-party coalition government (Link), Halldorsson T. I. et al (2025).
- **v** Junjie Wang, Xiaochen Liu, Arthur H. W. Beusen, Jack J. Middelburg; Surface-Water Nitrate Exposure to World Populations Has Expanded and Intensified during 1970–2010. Environ. Sci. Technol. 5 December 2023; 57 (48): 19395–19406. (Link)
- **vi** Schulte-Uebbing, L.F., Beusen, A.H.W., Bouwman, A.F. et al. From planetary to regional boundaries for agricultural nitrogen pollution. Nature 610, 507–512 (2022). (Link)
- **vii** Prickett, M. et al. (2023). When the first barrier fails: public health and policy implications of nitrate contamination of a municipal drinking water source in Aotearoa New Zealand (Prickett et al., 2023). Australasian Journal of Water Resources, 28(1), 64–73. (Link)
- **viii** FAO & IWMI (2018) More people, more food, worse water? A global review of water pollution from agriculture. UN Food and Agriculture Organization & International Water Management Institute. (Link)
- **ix** WHO (2017) Guidelines for drinking-water quality, 4th edition, incorporating the 1st addendum. P.53 (Link)
- **x** IPCC. (2019). Climate Change and Land: An IPCC special report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems. Intergovernmental Panel on Climate Change. https://www.ipcc.ch/srccl/
- **xi** Bot, A., & Benites, J. (2005). The importance of soil organic matter: Key to drought-resistant soil and sustained crop production (FAO Soil Bulletin 80). Food and Agriculture Organization of the United Nations. (Link)
- **xii** Breitburg et al. (2018) Declining oxygen in the global ocean and coastal waters. Science359,eaam7240. (Link)
- **xiii** IPBES. (2019). Global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. IPBES Secretariat. (Link)
- **xiv** WHO (2021) Plant-based diets and their impact on health, sustainability and the environment: a review of the evidence. WHO European Office for the Prevention and Control of Noncommunicable Diseases. (Link)