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| **Ministry for Foreign Affairs of Finland** | **Annex D** |

**Date:**

**CONSULTANCY ASSIGNMENT AND REQUIREMENT CV‑FORM**

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| **The title of the proposed expert:** | River Basin Monitoring and Water Quality Expert |
| **Family name:**  | Räike |
| **First names:** | Antti Lauri |
| **Place and year of birth:** | 23.12.1963 |
| **Nationality/Nationalities:** | Finnish |
| **Country of residence:** | Finland |
| **Contact details:** **address:****telephone:****e-mail:** | +358-400 148 521antti.raike@ymparisto.fi |

**A. EDUCATION** (Excluding short term and non relevant education)

|  |  |  |  |
| --- | --- | --- | --- |
| **Educational institution** | **Duration of studies****(start – graduation)** | **Degree completed** | **Main Subjects** |
| University of Helsinki |  1985 -1993 | M.Sc in limnology |  limnology, hydrology, chemistry |
|  |  |  |  |

**B. LANGUAGE ABILITIES**

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| --- | --- | --- | --- | --- |
|  **Language** | **Native language** | **Basic level 1 or 2** | **Intermediate level 3 or 4** | **Advanced level 5 or 6** |
| **Finnish (mother tongue)** |  |  |  |  |
| **English** |  |  |  | 5 |
| **Swedish** |  |  |  | 5 |
| **German** |  | 2 |  |  |

Certificates, diplomas, work certificates, testimonials and language certificates shall be provided if separately requested by the Ministry for Foreign Affairs of Finland.

**C. KEY QUALIFICATIONS**

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| **Ares of expertise, general country/region-specific experience** |
| Mr. Räike works in one of the key thematic areas of Finnish Environment Institute (SYKE). His main responsibilities are linked to loading of freshwaters, monitoring of water quality and material transport by rivers. He has international working experience in Helsinki Commissions (HELCOM) working groups. Those tasks included data handling, report writing and making guidelines for pollution load compilations. In addition he has been working as a consultant for the European Environment Agency (EEA). His duties included developing and updating pan-European indicators for the assessment of water quality of European seas. Nationally he has been co-operating with the ministry of the environment and regional environment centres e.g. in making guidelines for coastal water quality monitoring and in establishing coastal monitoring network.He has long experience in data handling and statistical analyses of water quality data. He has published several reports and research articles dealing with monitoring of water quality, loading of the Baltic Sea and eutrofication of freshwaters. He has taken courses of development studies at the University of Helsinki and worked as an environmental expert in a development aid project in Laos. |

**D. WORK CAREER (MAIN PERMANENT JOBS / EMPLOYERS)**

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| --- | --- | --- | --- | --- | --- |
| **Years (from-to)** | **Location** | **Company/Agency** | **Position** | **Description (main duties)** | **Months total** |
| 1995-todate  | Helsinki | SYKE | Senior Research Scientist | Project leading and research |  |

**E. REFERENCES (PROJECTS, PROGRAMMES, RESEARCH AND OTHER ASSIGNMENTS RELEVANT TO THE TASK)**

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| --- | --- | --- | --- | --- | --- |
| **Years (from-to)** | **Location** | **Company/Agency** | **Position** | **Description (main duties and work carried out within the project / programme)** | **Months total** |
| 2017 | Helsinki | SYKE | Project member | UUPRI* Data handling
 | 1 |
| 2014-2016 | Helsinki | SYKE | Project member | TEQUILA (Fluxes of Terminal Electron Acceptors: Linking Human Disturbance to the Health of Aquatic Systems)* Data handling
* Writing of research articles
 | 10 |
| 2013-2016 | Helsinki | SYKE | Project member | DOMQUA (Drinking water treatment adaptation to increasing levels of DOM and changing DOM quality under climate change)* Data handling
* Writing of research articles
 | 12 |
| 2013 | Laos | SYKE | Scientific advisor | Establishing and coordination of a water quality monitoring system for Laos* Planning of a national water quality network
* Teaching of local export subjects relevant of water quality monitoring
 | 2 |
| 2014- | Helsinki | HELCOM | Group member | PRESSURE (Working Group on Reduction of Pressures from the Baltic Sea Catchment Area)* Finland’s representative in the group
 |  |
| 2014- | Helsinki | HELCOM | Group member | REDCORE (Reduction Scheme Core Drafting Group)* Finland’s representative in the group
 |  |
| 2011-2014 | Helsinki | HELCOM | Group member | MONAS (Monitoring and Assessment Group)* Finland’s representative in the group
 |  |
| 2009- | Helsinki | HELCOM | Group member |  PLC (Pollution Load Compilation) working group* Finland’s representative in the group
 |  |
| 2009-2016 | Helsinki | SYKE | Project Leader | The effects of agricultural pollution in coastal waters: * Establishing and coordination of a water quality monitoring system to meet the requirements of the European Union Water Framework Directive
* Making guidelines technical assistance for regional environment centres
* Dissemination of information e.g. by arranging workshops and participants meetings
 | 21 |
| 2009-2012 | Helsinki | SYKE | Project member | FiDiPro (Biogeochemistry of the Baltic Sea in a Changing Climate: From Catchment to Open Sea): Study of long-term trends in loading and organic carbon export to the Baltic Sea.* Data handling
* Writing of research articles
 | 9 |
| 2007–2011 | Helsinki | SYKE | Project member | European Topic Center on Water (ETC-W). Work as a consultant for the European Environmental Agency (EEA).* Developing and updating indicators to assess the water quality of the European seas
* Dissemination of information e.g. by arranging workshops and participants meetings
* Preparation of guidelines to assess nitrogen loading of the European seas
 | 30 |
| 2006­– 2007 | Helsinki | SYKE | Project member | Protection of aquatic communities in the Gulf of Finland: Risk-based policymaking (EVAGULF, European Union). * Estimation of loading originating in river basins based on the data collected from national databases
* Report writing
 | 24 |
| 2003­– 2006 | Helsinki | SYKE | Project member | Searching efficient protection strategies for the eutrophied Gulf of Finland: the integrated use of experimental and modelling tools (SEGUE, Academy of Finland). * Main duties: Estimation of the amount and source apportionment of loading originating in river basins based on the data collected from national databases
 | 10 |
| 2001­– 2003 | Helsinki | SYKE | Project member | Analysis of nutrient cycles in ecological and socio-economic systems for policy purposes (AESOPUS, Academy of Finland): * Duties: Estimation of cycling and effects of nutrients in Finnish freshwaters and report writing
 | 10 |
| 2000– | Helsinki | SYKE | Project leader | Material input to the Baltic Sea by Finnish rivers: * Developing, coordinating and leading the monitoring programme
* Support and technical assistance for the regional environmental centres
 | 80 |
| 2000–2006 | Helsinki | SYKE | Project member | Preparation of HELCOMs fourth Pollution Load Compilation on total waterborne loads of nutrients and some hazardous substances to the Baltic Sea:: * Responsible for calculating the Finnish load figures and
* Co-authoring the report
* Preparation of pollution load guidelines
 | 12 |
| 1997–1999 | Helsinki | SYKE | Project member | Environmental impact assessment of the role of nitrogen as the growth limiting factor in Finnish inland waters.* Compilation of data from national databases
* Data handling (including assessment of data)
* Preparation of the assessment report
 | 20 |
| 1996–1998 | Helsinki | SYKE | Project member | Assessment of the impact of nitrogen loading in Lake Lohjanjärvi: * Responsible research scientist.
 | 12 |
| 1995–1998  | Helsinki | SYKE | Project member and data consultant | Preparation of HELCOMs third Pollution Load Compilation.* Data handling and manager of the database
* Compiling data collected and assessed by all the nine HELCOM states around the Baltic Sea
* Training of national experts to reporting of data
* Responsible of calculating Finnish load figures
* Preparation of pollution load guidelines
 | 18 |
| 1991–1992 | Helsinki | University of Helsinki | Researchscientist | Assessment of growth limiting factors of the alga *Gonyostomum semen:* * Responsible research scientist.
 | 24 |
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| ***Substance-related references relevant to the task*** |
| 2009-2016  | Helsinki | SYKE | Project Leader | The effects of agricultural pollution in coastal waters: * Establishing and coordination of a water quality monitoring system to meet the requirements of the European Union Water Framework Directive
* Making guidelines technical assistance for regional environment centres
* Dissemination of information e.g. by arranging workshops and participants meetings
 |  |
| 2007–2011 | Helsinki | SYKE | Project member | European Topic Center on Water (ETC-W). Work as a consultant for the European Environmental Agency (EEA).* Developing and updating indicators to assess the water quality of the European seas
* Dissemination of information e.g. by arranging workshops and participants meetings
* Preparation of guidelines to assess nitrogen loading of the European seas
 |  |
| 2000– | Helsinki | SYKE | Project leader | Material input to the Baltic Sea by Finnish rivers: * Developing, coordinating and leading the monitoring programme
* Support and technical assistance for the regional environmental centres
 |  |
| 1995–1998  | Helsinki | SYKE | Project member and data consultant | Preparation of HELCOMs third Pollution Load Compilation.* Data handling and manager of the database
* Compiling data collected and assessed by all the nine HELCOM states around the Baltic Sea
* Training of national experts to reporting of data
* Responsible of calculating Finnish load figures
* Preparation of pollution load guidelines
 |  |
| ***Other references*** |
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 Efficient working months total

**F. OTHER RELEVANT EXPERIENCE AND REFERENCES SUCH AS PUBLICATIONS, COMPUTER SKILLS, ETC.**

**Computer skills:** Microsoft Office, SAS, ArcView, CorelDraw

### **LIST OF PUBLICATIONS**

***Articles in international scientific journals with referee practice***

Mannio, J., **Räike, A.**, Vuorenmaa, J. 2000. Finnish lake survey 1995: regional characteristics of lake chemistry. Verhandlungen der Internationalen Vereinigung für Theoretische und Angewandte Limnolo­gie, vol. 27, p. 362‑367 ISSN 0368‑0770.

Pitkänen, H., Lehtoranta, J. & **Räike, A**. 2001. Internal nutrient fluxes counteract decreases in external load: the case of the estuarial Eastern Gulf of Finland, Baltic Sea. Ambio 30 (4-5): 195-201.

**Räike, A**., Pietiläinen, O. P., Rekolainen, S., Kauppila, P., Pitkänen, H., Niemi, J., Raateland, A. and Vuorenmaa, J. 2003. Trends of phosphorus, nitrogen and chlorophyll a concentrations in Finnish rivers and lakes in 1975-2000. - Science of the Total Environment 310: 47-59.

Arvola, L., **Räike, A**., Kortelainen, P. and Järvinen, M. 2004. The effect of climate and landuse on TOC concentrations and loads in Finnish rivers. Boreal Environment Research 9(5): 381-387.

Granlund, K., **Räike, A**., Ekholm, P., Rankinen, K., and Rekokolainen, S. 2005. Assessment of water protection targets for agricultural nutrient loading in Finland. Journal of Hydrology 304(1-4): 251-260

Mattsson, T., Kortelainen, P., A., and **Räike, A**. 2005. Export of DOM of boreal catchments: impacts of land use cover and climate. Biogeochemistry 76: 373-394.

Algesten, G., Brydsten, L., Jonsson, P., Kortelainen, P., Löfgren, S., Rahm, L., **Räike, A**., Sobek, S., Tranvik, L., Wikner, J.,and Jansson, M. 2006. Organic carbon budget for the Gulf of Bothnia. Journal of Marine Systems 63(3-4): 155-161.

Lepistö, A., Granlund, K., Kortelainen, P., and **Räike, A**. 2006. Nitrogen in river basins: Sources, retention in the surface waters and peatlands, and fluxes to estuaries in Finland. Science of the Total Environment, 365(1-3): 238-259.

Ekholm, P., Granlund, K., Kauppila, P., Mitikka, S., Niemi, J., Rankinen, K., **Räike, A.**, and Räsänen, J. 2007. Influence of EU policy on agricultural nutrient losses and the state of receiving surface waters in Finland. Agricultural and Food Science 16(4): 282-300.

Mattsson, T., Kortelainen, P., Lepistö, A., and **Räike, A**. 2007. Organic and minerogenic acidity in Finnish rivers in relation to land use and deposition. Science of the Total Environment 383(1-3): 183-192.

Pitkänen, H., Kiirikki, M.,, Savchuk, O., **Räike, A**., Korpinen, P., Wulff, F. 2007. Searching efficient protection strategies for the eutrophied Gulf of Finland: The combined use of 1D and 3D modelling in assessing long-term state scenarios with high spatial resolution. Ambio 36(2-3): 272-279.

Mattsson, T., Kortelainen, P., Laubel, A., Dylan Evans, D., Pujo-Pay, M., **Räike, A**., Conan, P. 2009. Export of dissolved organic matter in relation to land use along a European climatic gradient. Science of the total environment 407 (6): 1967-1976.

Tallberg, T., Lukkari, K., **Räike, A.**, Lehtoranta, J., Leivuori, M.2009. Applicability of a sequential P fractionation procedure to Si in sediment. Journal of Soils and Sediments 9 (6): 594-603.

**Räike, A.**, Kortelainen, P., Mattsson, T. & Thomas, D.N. 2012. 36 year trends in dissolved organic carbon export from Finnish rivers to the Baltic Sea. Science of the Total Environment 435-436 (1): 188-201.

Tallberg, P., **Räike, A**., Lukkari, Kaarina; et al.Horizontal and vertical distribution of biogenic silica in coastal and profundal sediments of the Gulf of Finland (northeastern Baltic Sea). 2012. BOREAL ENVIRONMENT RESEARCH 17: 347-362.

Fleming-Lehtinen, V., Räike, A., Kortelainen, P., Kauppila, P., & Thomas, D. N. 2014. Organic Carbon Concentration in the Northern Coastal Baltic Sea between 1975 and 2011. Estuaries and Coasts, 38(2), 466–481. <https://doi.org/10.1007/s12237-014-9829-y>

Ekholm, P., Rankinen, K., Rita, H., **Räike, A**., Sjöblom, H., Raateland, A., … Taskinen, A. 2015. Phosphorus and nitrogen fluxes carried by 21 Finnish agricultural rivers in 1985- 2006. Environmental Monitoring and Assessment, 187(4). <https://doi.org/10.1007/s10661-015-4417-6>

Mattsson, T., Kortelainen, P., Räike, A., Lepistö, A. & Thomas, D. N. 2015. Spatial and temporal variability of organic C and N concentrations and export from 30 boreal rivers induced by land use and climate. Science of the Total Environment 508: 145-154. <http://dx.doi.org/10.1016/j.scitotenv.2014.11.091>

Xiao, Y.-H., Räike, A., Hartikainen, H. & Vähätalo, A. V. 2015. Iron as a source of color in river waters. Science of the Total Environment 536: 914-923. http://dx.doi.org/10.1016/j.scitotenv.2015.06.092

de Wit, H. A., Valinia, S., Weyhenmeyer, G. A., Futter, M. N., Kortelainen, P., Austnes, K., Hessen, D.A., **Räike, A.**, Laudon, H., Vuorenmaa, J. (2016). Current Browning of Surface Waters will be Further Promoted by Wetter Climate. Environmental Science & Technology Letters, acs.estlett.6b00396. <https://doi.org/10.1021/acs.estlett.6b00396>

Huttunen, I., Huttunen, M., Piirainen, V., Korppoo, M., Lepistö, A., **Räike, A**., Tattari, S. & Vehviläinen, B. 2016. A national-scale nutrient loading model for Finnish watersheds-VEMALA. Environmental Modeling and Assessment 21(1): 83-109. http://dx.doi.org/10.1007/s10666-015-9470-6

**Räike, A**., Kortelainen, P., Mattsson, T., & Thomas, D. N. 2016. Long-term trends (1975–2014) in the concentrations and export of carbon from Finnish rivers to the Baltic Sea: organic and inorganic components compared. Aquatic Sciences, 78(3), 505–523. <https://doi.org/10.1007/s00027-015-0451-2>

Knuuttila, S., Räike, A., Ekholm, P. & Kondratyev, S. 2016. Nutrient inputs into the Gulf of Finland: Trends and water protection targets. Journal of Marine Systems Online, in press <http://dx.doi.org/10.1016/j.jmarsys.2016.09.008>

Lehtoranta, J., Savchuk, O. P., Elken, J., Dahlbo, K., Kuosa, H., Raateoja, M., Kauppila, P., Räike, A. & Pitkänen, H. 2017. Atmospheric forcing controlling inter-annual nutrient dynamics in the open Gulf of Finland. Journal of Marine Systems Online, in press http://dx.doi.org/10.1016/j.jmarsys.2017.02.001