

About the Centre



The UN Environment GEMS/Water Capacity Development Centre was established in the Environmental Research Institute of University College Cork, Ireland in 2015 to promote and support water quality monitoring and assessment on behalf of UN Environment. As one of two new GEMS/Water Centres, our role is to encourage a standardized approach to water quality data generation by providing guidance and training on all aspects of water quality monitoring and quality assurance of monitoring activities.

The Centre's scientific staff have expertise in water quality monitoring using physical, chemical and biological approaches, in the field and laboratory, together with expertise in design of training materials. Through a network of partners that includes the Irish Environmental Protection Agency and other Universities and Colleges in Ireland, the Centre also has expertise in quality assurance and control, sensors for in-situ water quality monitoring, water quality modelling, aquatic ecology, water and wastewater treatment, and hydrology.

Centre staff have extensive experience in teaching and training and work with an instructional designer to develop training courses for on-line delivery.

About GEMS/Water

GEMS/Water was established in 1978 and is managed by the United Nations Environment in Nairobi in co-operation with other UN agencies. The programme is creating a unique global water quality monitoring network, in partnership with participating countries that provide water quality data to a central database known as GEMStat. GEMStat is hosted and managed by the GEMS/ Water Data Centre at the Federal Institute of Hydrology in Koblenz, Germany.

In addition to collecting water quality data, GEMS/Water provides support to countries that wish to establish or improve monitoring programmes for the assessment of water quality. Capacity development, in the form of training, advice and assistance, is provided by the GEMS/Water Capacity Development Centre in University College Cork in Ireland.

GEMS/Water is supported by a Regional Hub in Brazil at the National Water Agency, ANA, and is seeking partners for additional Regional Hubs.

GEMS/Water data can be used for assessments of status and trends in global inland water quality and for tracking progress towards Sustainable Development Goal 6.



UN Environment GEMS/Water Capacity Development Centre

Capacity Development for
Freshwater Quality Monitoring

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Rialtas na hÉireann
Government of Ireland

in partnership with:



Training and Workshops

The GEMS/Water programme has a long tradition of providing training workshops to participating countries. Since 2016, new training courses have been developed for delivery on-line as well as in traditional workshop format. On-line modules can be taken individually for Continuous Professional Development or as part of a Postgraduate Diploma in Freshwater Quality Monitoring and Assessment. Most courses and modules are fully accredited by University College Cork with internationally recognised and transferrable credits. Non-accredited training courses and tutorials are also available.

Countries seeking assistance can:

- Suggest workshops on specific topics according to their needs
- Participate in regional workshops organised by GEMS/Water in partnership with other national or international agencies
- Participate in on-line training and accredited modules



Accredited courses delivered on-line

Postgraduate Diploma in Freshwater Quality Monitoring and Assessment. Two-year, part time programme.

Individual modules for Continuous Professional Development available

- EV6012 Freshwater monitoring programme design
- EV6013 Quality assurance for freshwater quality monitoring
- EV6014 Data handling, assessment and presentation for freshwater quality monitoring
- EV6015 Water quality monitoring and assessment in rivers, lakes and reservoirs
- EV6016 Water quality monitoring and assessment of groundwater
- EV6017 Freshwater quality monitoring with biota and particulate matter

Non-accredited courses

Monitoring programme and network design for freshwater bodies.

Sustainable Development Goal Indicator 6.3.2 Step by step Methodology.

Capacity Development

We can provide advice and training in:

- Water quality monitoring network design
- Network development and operation
- Field and laboratory monitoring techniques in rivers, lakes and groundwaters
- Quality assurance for water quality monitoring programmes
- Ambient water quality monitoring in relation to the Sustainable Development Goal for water

We can also assist in developing:

- Biological monitoring methods for surface waters
- Citizen monitoring programmes
- Real time monitoring networks

