

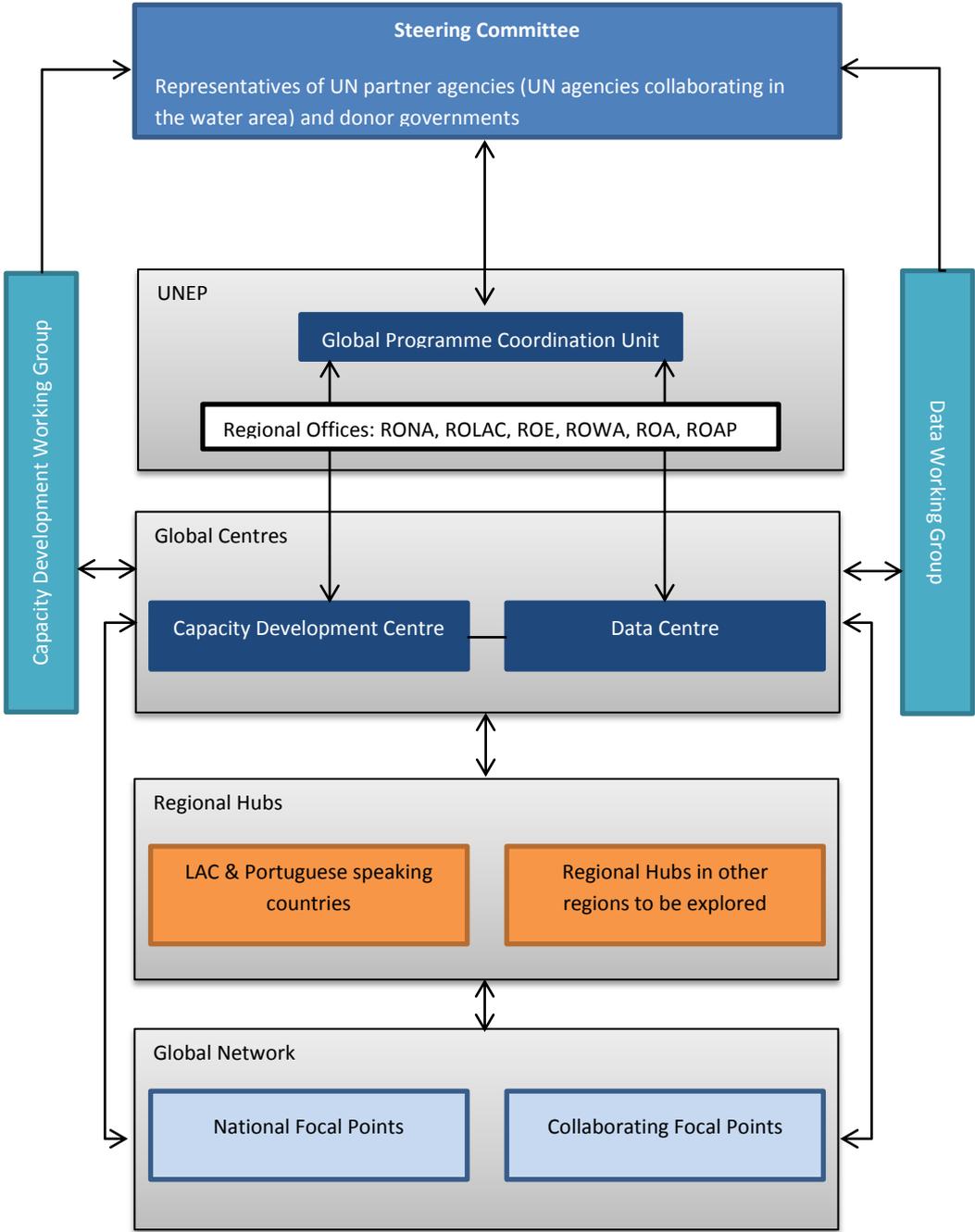
Draft Work Plan (2016-17) of the Global Environment Monitoring System, Water, Programme, UNEP GEMS/Water

The GEMS/Water programme was established in 1978 to collect global water quality data for assessments of status and trends in global inland water quality. With the co-operation of participating countries, the programme is creating a unique global water quality monitoring network that provides water quality data to a central database known as GEMStat. It also provides support and encouragement to developing countries that wish to establish monitoring programmes and conduct assessments of water quality, through the provision of capacity development in the form of training, advice and assessment tools. In 2014, the GEMS/Water Programme mandate was renewed and strengthened by UNEA Resolution 1/9 and it was restructured with new donors and three main operating centres: a Global Programme Co-ordination Unit (GPCU) in Nairobi, a Data Centre in Germany and a Capacity Development Centre in Ireland. Regional activities are supported by Regional Hubs, such as the National Water Agency in Brazil.

Following UNEA Resolution 1/9 a revised GEMS/Water Programme has been developed for adoption by the United Nations Environment Assembly at its second session (UNEP/EA.2/8) to which this draft work plan refers. It highlights the work plans and work flows including milestones for each of the components organized in work packages, related tasks and timelines.

Project Scope

Project Implementation Structure



Roles and functions

Global Programme Coordination Unit

Functions: The Global Programme Coordination, GPCU, is in charge of the overall coordination of the UNEP GEMS/Water programme and the day to day management. It supports the Steering Committee and Working Groups, and liaises with key executing partners, the UNEP Regional Offices, and donors. The GPCU oversees reporting obligations in the UNEP Programme of Work (PoW) and works with executing partners, donor governments and institutions as well as with the financial and administrative officers and the Steering Committee to meet external reporting requirements.

In executing GEMS/Water the GPCU assists the Programme Steering Committee as well as the Data and Capacity Development Working Groups and is in charge to implement their strategic and operational decisions. The GPCU assists in the development of the annual and multi annual work plans, embedding GEMS/Water in the Programme of Work and in the organization of workshops on national and regional level. It works with the committees on the design and implementation of a GEMS/Water funding strategy and reaches out to donors on governmental and other levels as well as to executing partners to provide for supporting agreements.

The GPCU liaises with, maintains and expands the network of GEMS/Water National and Collaborating Focal Points (NFPs and CFPs; <http://www.unep.org/gemswater/GlobalNetwork/NFPRegistry/tabid/78531/Default.aspx>). It works with Regional Hubs and partners on the design of water quality monitoring schemes, capacity development and assessments as well as providing services to inform policy making and water management.

The GPCU supports the GEMS/Water website and content management and coordinates public outreach of the programme globally. It provides information to science policy interface processes and institutions such as the United Nations Environment Assembly and sessions of UNEP's Country Permanent Representatives (CPR). It works with executing partners and Regional Offices to promote information flow into UNEP Live – UNEP's knowledge management and information platform.

The GEMS/Water GPCU is actively involved in UNEP's interdivisional water group and coordinates activities with the Chief of the Freshwater Ecosystems Unit in the Division of Environmental Policy Implementation, DEPI. It coordinates contribution to and collaboration with UN-Water in general and specifically in the implementation of the SDG 6 coherent monitoring programme GEMI (Monitoring Water and Sanitation in the 2030 Agenda for Sustainable Development).

Composition: In the revised UNEP GEMS/Water the Global Programme Coordination Unit, GPCU, is accommodated in the Division of Early Warning and Assessment (DEWA) at UNEP Headquarters in Nairobi. It is supported by: (1) a Senior Programme Officer providing oversight and coordination internally and externally; (2) a Programme Officer in a supportive role; (3) one Associate Programme Officer, and potentially an additional United Nations Volunteer, UNV, engaged from partner governments whenever the opportunity arises; (4) support from the Fund Management Office (FMO) and one general support staff to assist the programme activities, committees, partners and day to day management .

Point of Contact: Hartwig Kremer, Senior Programme Officer, UNEP DEWA, hartwig.kremer@unep.org and Kilian Christ, Associate Programme Officer, UNEP DEWA, kilian.christ@unep.org

Capacity Development Centre

Functions: Under the revised structure for GEMS/Water, the Capacity Development activities relating to water quality monitoring and assessment are co-ordinated and delivered by the newly-established GEMS/Water Capacity Development Centre (CDC) in Cork, Ireland under a five-year project co-operation agreement that was signed in September 2015. The functions of the Centre are to encourage a standardized approach to data generation by participating countries through providing guidance and training on all aspects of water quality monitoring and quality assurance of monitoring activities. The aim is to ensure compatibility and comparability of data for use in national, regional and global assessments. The GEMS/Water CDC will maintain the coherence of the overall GEMS/Water programme by ensuring standardization of approach across all regions, through production of standard methods, overseeing training course content and training staff where required. All capacity development initiatives will be planned and implemented in close co-operation with the UNEP GPCU and UNEP Regional Offices to ensure they are appropriately and sensitively targeted and delivered.

Composition: The Centre is based in the Environmental Research Institute (ERI) of University College Cork (UCC) and is a partnership between three constituent Universities of the National University of Ireland (UCC, Trinity College Dublin and National University of Ireland Galway), Dublin City University, the Institute of Technology in Sligo and the Environmental Protection Agency (EPA) of Ireland. The Centre has five staff including the Director: four staff are scientists with experience and expertise in water quality monitoring and/or analytical chemistry and the other is an instructional designer who works with the other staff and partners to design and produce on-line training materials. Two of the scientific staff have international experience in teaching and training at technical and higher levels, including on-line delivery.

Point of Contact: Deborah Chapman, Director GEMS/Water Capacity Development Centre, University College Cork, Ireland, d.chapman(at)ucc.ie

Data Centre

Functions: Established in early 2014, the GEMS/Water Data Centre (DC) is coordinating and delivering the monitoring data collection, processing and dissemination activities relating to the global water quality monitoring database and information system GEMStat. The main function of the Centre is to mobilize and support the generation, collection, sharing and access to quality-assured data on the water quality of freshwater resources through the GEMS/Water Global Network to enable assessments of the state and trends of water quality at the regional and global scale such as the World Water Quality Assessment (WWQA) supported by UNEP and UN-Water.

It supports standardization and harmonization efforts of water quality data collection, analysis and exchange through collaboration with the World Meteorological Organization (WMO) and the Hydrology Domain Working Group (HDWG) of WMO and the Open Geospatial Consortium (OGC). The DC develops water quality indicators in support of large-scale assessments such as GEO and the monitoring of the 2030 Agenda for Sustainable Development.

Composition: The Data Centre is managed by the International Centre for Water Resources and Global Change (ICWRGC) hosted by the Federal Institute of Hydrology (BfG) in Koblenz, Germany. It operates under a 10-year co-operation agreement between UNEP and the Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB) that was signed in June 2015 and an inter-ministerial agreement between the BMUB and the Federal Ministry of Transport and Digital Infrastructure (BMVI).

The Data Centre has five scientific and technical staff: (1) a Scientific Officer for the coordination of the Centre, (2) a Scientific Officer for data analysis and product development, (3) a Scientific Officer for data collection, processing, product generation and public relations, (4) a Scientific Officer for the development and coordination of IT and data management and (5) a Technical Officer for database and information system maintenance.

Point of Contact: Siegfried Demuth, Director International Centre for Water Resources and Global Change, demuth(at)bafg.de, Philipp Saile, GEMS/Water Data Centre, saile(at)bafg.de

Regional Hubs

Regional Hubs will promote broad-based collaboration with partner institutions that have similar interests in water quality management and will contribute to the implementation of UNEP GEMS/Water activities at the regional level. As opposed to the past centralised organisation, the decentralised approach through regional hubs is expected to increase efficient delivery of water quality services and products in response to specific needs of countries. The model will also enhance international cooperation (north-south and south-south), regional ownership and partnership with governments, universities, centres of excellence, and individual experts. The focus of assistance provided by the GEMS/Water programme will be mainly on developing countries and countries with economies in transition.

GEMS/Water Regional Hub(s) collaborate closely with the GPCU. They are expected to carry out or participate actively in water quality monitoring and assessments, and to work closely with host country partners and the GEMS/Water Capacity Development and Data Centres to facilitate tailored regional/national training in water quality monitoring and analyses. They participate in the development and application of GEMS/Water capacity building tools, encourage and spearhead submission of regional or country level water quality data to the UNEP Live platform, and to contribute to the Programme's fundraising efforts by carrying out resource mobilisation at the regional level; and assist in organising WQ outreach activities. UNEPs regional Offices will work closely and follow up on activities of regional hubs and will assist the GPCU in coordination of activities at this level.

Proposed criterion for a country to qualify as a Regional Hub/ a champion country/ institution

A country/Institution within a champion country that is able and willing to act as a regional/sub-regional champion and having the following criterion could be considered as a Hub.

- 1) Having many highly trained experts in water quality compared with other countries in the region/sub-region
- 2) Volume of research in water quality related issues and well-equipped or set-up laboratory facilities with qualified personnel and expertise
- 3) Ability to carry out its own regular water quality sampling, analysis and monitoring activities and to harmonise water quality data.
- 4) Having a network of regional partners and able to facilitate regional capacity building trainings and WQ assessment projects in collaboration with the UNEP GEMS/Water Programme.
- 5) Able to host a secretariat for capacity building/training

- 6) A regional water quality centre able to better identify and address regional issues.
- 7) Able to Link Water Basin Authorities to GEMS/Water
- 8) Able to assist and partner with regional NFPs to use/disseminate statistical tools/GEMStat

Point of Contact: current Regional Hub for the LAC Region, Marcelo Pires da Costa, National Water Agency of Brazil, marcelo(at)ana.gov.br

Focal Points

The UNEP GEMS/Water Programme collaborates with a network of local water authorities and agencies through designated National Focal Points (NFPs) and Collaborating Focal Points (CFPs).

The primary function of the NFP is to provide a national environmental water quality data and information service from the operating base of a governmental water quality monitoring centre. The national centre should provide easy public access to wide-ranging and authoritative information on water quality data and information for state and trends of the inland aquatic environment.

The NFP should at minimum submit national water quality data and information on a variety of parameters, on a yearly (one time per year) basis. Both the content and format of the substantive information provided should be compatible with the user needs, and with the methods and procedures provided in the GEMS/Water Operational Guide.

In practice, many NFPs are located in a national environmental information centre or a water resource branch of the Ministry of Environment, Ministry of Water Resources, or other governmental ministry, agency, commission, with strong environmental water resources mandate. UNEP GEMS/Water Programme officially recognizes the designation of an NFP or CFP. This may be in the form of a letter of agreement; a memorandum of understanding can be put in place if required.

Each national government is invited and encouraged to designate a NFP and to communicate its name, representative and address to the Global Programme Coordination Unit of the UNEP GEMS/Water Programme. The location and organizational structure of the NFP is the prerogative of the participating government. GEMS/Water is designed to be sufficiently flexible to allow for many focal point variants. In keeping with its catalytic role, GEMS/Water assists NFPs to participate effectively in the programme by offering training opportunities, prototypes of publicity materials, technical documentation, consultancy services, QA/QC tools etc.

Collaborating Focal Points, CFPs, are participating and supporting organizations or institutions which can be of different kind. CFPs are designated on a case by case basis, with roles and outputs determined by mutual agreement. CFPs can be regional or sub-regional in scope and activity.

Steering Committee

Terms of reference:

1. The Steering Committee consists of representatives from Donor Governments and UN agencies which also work in water related areas and have a mutual interest in GEMS/Water. Key executing partners, i.e. those hosting GEMS/Water components, representatives of Regional Hubs and the UNEP GEMS/Water Global Programme Coordination Unit, GPCU, participate as ex-officio members.

2. The SC will provide overall strategic guidance, advice, direction and focus to the GPCU based at UNEP Headquarters.
3. It will offer guidance on how best to synergise with other and complementary programmes/activities, and assist in soliciting wide support for implementation as well as partnerships in order to build stronger networks of collaborators.
4. The SC will meet physically at least once every year. It will agree on its own operational arrangements, e.g. modes of communication, frequency of consultation, selection of new members etc. The SC is assisted by the UNEP GEMS/Water GPCU.
5. The SC will ensure that the UNEP GEMS/Water Programme fits into UNEP's terms under existing and future legal instruments, i.e. currently with Ireland's DFAT and DECLG and the project cooperation agreement with University College, Cork, the Agreement with BMUB, Germany, supporting GEMStat, and the MOU with the National Water Agency of Brazil, ANA .
6. It will ensure that the UNEP GEMS/Water Programme coordinates with the Freshwater and Ecosystems Unit, FEU, in the UNEP Division of Environmental Policy Implementation, DEPI.
7. It will facilitate strategic issues, receive and discuss reports provided by the thematic Working Groups for Data and Capacity Development and make linkages with UN bodies and potential funders as required.

Working Groups

GEMS/Water will receive technical support and guidance by two thematic Working Groups dealing with data related issues and capacity development respectively. The Working Groups provide targeted input to the SC during its meetings and when required between meetings.

Capacity Development Working Group:

The Capacity Development Working Group agrees the CD workplan on an annual basis and assists with prioritising activities and ensuring that the objectives of the GEMS/Water Programme are met. The Working Group comprises water experts from Irish Universities, government agencies and the host University, together with representatives from GEMS/Water partners and UNEP Regional Offices as appropriate. The terms of reference for the Working Group are to:

- Implement the work plan to deliver on the overall strategic objective of building knowledge and skills for the monitoring and analysing of water quality at institutional, national, regional and global level.
- Carry out an analysis of the Centre's strategic plan and ensure that, as appropriate, all opportunities are exploited and all risks are mitigated.
- Consult and collaborate with the Data Working Group and the GPCU to develop and agree a joint yearly work plan of activities for the GEMS/Water programme, based on the resources available.
- Participate in the development, delivery and implementation of various projects, research, workshops and training events.
- Ensure that all reporting requirements to the GEMS/Water Steering Committee and UNEP are met in a timely fashion.
- Work with the GPCU to secure funding from other sources.

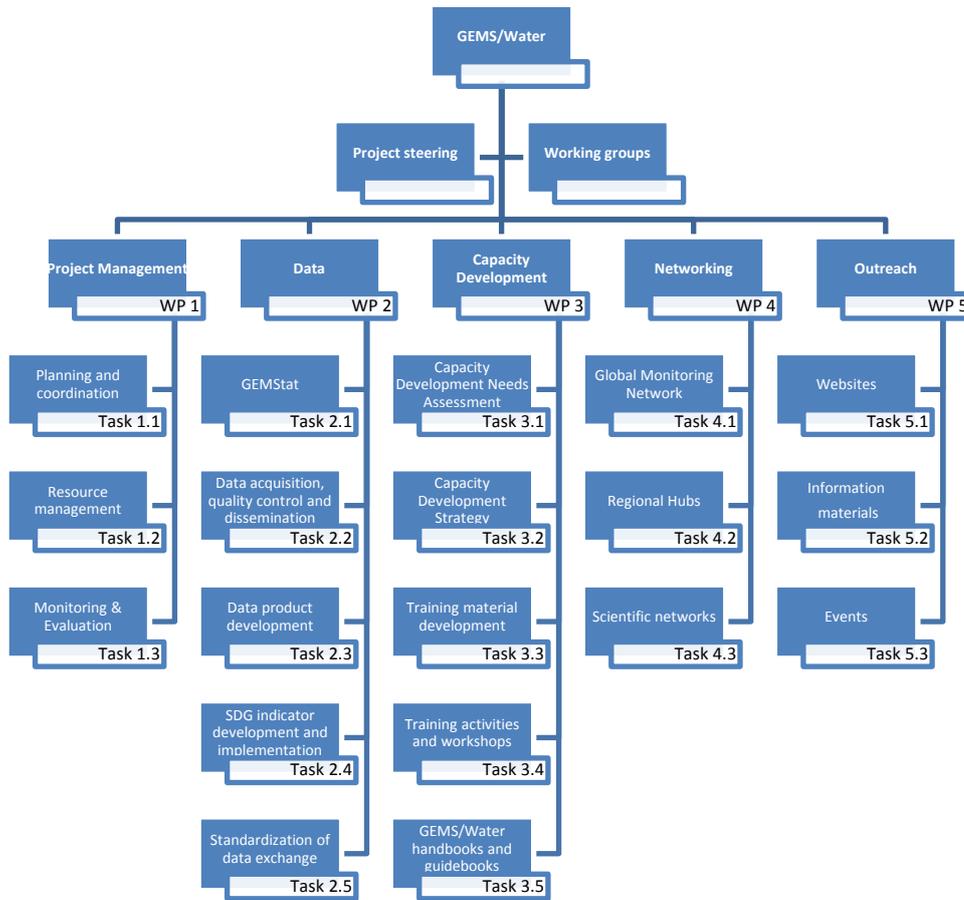
- Report to the SC on the implementation of the work plan and recommendations for future steps

Data Working Group:

The Data Working Group agrees the data workplan on an annual basis and assists with prioritising activities and ensuring that the objectives of the GEMS/Water Programme are met.

(ToR to be provided following the inaugural meeting)

Work Packages and Tasks



Project Management

WP-1	Project Management	
Responsible	GPCU GEMS/Water Global Programme Coordination Unit	
Objectives	<ul style="list-style-type: none"> To manage and coordinate the GEMS/Water Programme in consideration of the decisions provided and advice given by its Steering Committee and the Data and Capacity Development Working Groups in order for the Programme to provide reliable water quality data and knowledge products that Member States need for the effective management of water resources and to keep track of their achievements, including in the implementation of Agenda 2030. 	
Task 1.1	<p>Planning and coordination</p> <p>GPCU coordinates and organizes the GEMS/Water day to day project implementation and management based on current and future project document/s and Steering Committee and Working Group decisions as well as agreements with donors;</p> <p>GPCU to arrange and support meetings of the Steering Committee and the Data and Capacity Development Working Groups (face to face and virtual).</p> <p>GPCU co-ordinates with the Freshwater Ecosystems Unit, FEU, in DEPI to ensure effective involvement of GEMS/Water in the Programme “Monitoring Water and Sanitation in the 2030 Agenda for Sustainable Development”, GEMI, (coordinated by UN-Water).</p> <p>Coordination of the involvement in GEMI with DEPI and UN-Water and revision of methodology based on country feedback from Proof of Concept, (with DC and CDC).</p> <p>GEMS GPCU provides updates to and is supported by the Interdivisional Water Group in UNEP.</p> <p>Updating and maintaining the list of National and Collaborating focal points carried out by GPCU in collaboration with the UNEP Regional Offices and the GEMS Regional Hub/s.</p> <p>Coordination and organization of capacity development workshops and other water related activities as advised by the Steering Committee and/or Working Group/s; initially the “Training Needs Assessment” workshop for Africa (with the GEMS/Water Capacity Development Centre at UCC, and Regional Office ROA).</p> <p>Development of new Project Document for GEMS/Water to be embedded in PoW 2018-2021, biennia 18/19 and 20/21.</p>	<p>permanent</p> <p>once per year (min.), physical</p> <p>ongoing</p> <p>April – December 2016</p> <p>as appropriate</p> <p>June 2016-onwards</p> <p>September 2016 – continued</p> <p>January – June 2017</p>
Task 1.2	<p>Resource management</p> <p>GPCU and FMO provide and oversee annual budgets, the financial and performance reporting.</p> <p>GPCU oversees allocation of time and human resources to tasks in the GEMS/Water Work Plan.</p> <p>Fundraising strategy developed by GEMS SC and Working Groups supported by GPCU.</p> <p>Implementing the Fundraising Strategy: Engaging Member</p>	<p>recurring (June/December)</p> <p>continuous</p> <p>June – December 2017</p> <p>2017 onwards</p>

	States and institutions to seek additional in kind and financial support for GEMS/Water – an initial focus shall be on enabling and supporting “Performance Evaluation” globally and potential for larger number of workshops.	
Task 1.3	<p>Monitoring and evaluation</p> <p>GPCU reports regularly according to legal instruments and project documents to donors and executing partners (MoUs, Agreements, PCAs), and in the internal monitoring and evaluation schemes (PIMS, IMDIS).</p> <p>The CDC reports regularly according to the specified schedule of the legal agreements with, and governance requirements of, the Centre.</p>	Recurring (usually twice annually – see table at the end)

Milestones

GPCU M1	The GEMS/Water Global Programme Coordination Unit has recruited staff according to the work plan and new staff is knowledgeable of the programme, donors, partners and the steps of implementation.	July 2016
GPCU M2	The Work Plan is agreed by donors, partners and the Steering Committee and Working Groups.	July 2016
GPCU M3	The GEMS Steering Committee Meeting is planned and arranged for second half 2016.	September 2016
GPCU M4	Involvement in GEMI and interaction with DEPI’s FEU and UN-Water are operational.	begin 2016 - ongoing
GPCU M5	Contacts to NFPs and CFPs have been re-established and/or revised in close collaboration with Regional Offices and Regional Hub/s; an up to date list of partners in country is available on the web.	December 2016
GPCU M6	Workshops and meetings of partners e.g. Needs Assessment for Capacity Development in Africa are supported.	September 2016 – continued
GPCU M7	GEMS/Water related Project Document for implementation in the next Programme of Work is developed, reviewed and submitted.	June 2017
GPCU M8	A GEMS/Water Fundraising Strategy is developed and under implementation – contacts to further donors are established.	2017 onwards
GPCU M9	Reporting obligations are met in a timely fashion in collaboration with FMO and with partners, findings of past evaluation of GEMS are considered and reported on.	2016 recurring

Data

WP-2	Data	
Responsible	GEMS/Water Data Centre	
Objectives	<ul style="list-style-type: none"> Operationalize the global water quality database and information system GEMStat including a revision of the database structure, data management tools as well as a re-design of the online information system component and underlying web-services. Improve monitoring data coverage through enhanced data acquisition from the GEMS/Water Global Network in collaboration with the Global Programme Coordination Unit, the Capacity Development Centre, the Regional Hub(s) and existing regional and global monitoring networks. Revise and adapt existing data products to UNEP and SDG requirements. Develop new data products based on satellite remote sensing. Support the development and implementation of an ambient water quality indicator to track progress towards SDG target 6.3. Contribute to the harmonization and standardization of water quality monitoring data and metadata exchange. 	
Task 2.1	<p>GEMStat database and information system</p> <p>During 2016-2017, the focus will be on revising and operationalizing the GEMStat system in two phases.</p> <p>In the first on-going phase, the database content is being harmonized and its structure revised enhancing data import and export capabilities and quality control checks. The Analytical Methods Dictionary (AMD) containing metadata on water quality parameters and related analytical methods is being updated with additional metadata on reference methods. The online information system component is being re-designed to provide easier access to graphical and tabular visualizations of the underlying monitoring data.</p> <p>In the second phase from summer 2016 onwards, existing products and functionalities will be revised and embedded into the online information system incorporating new requirements emerging from the World Water Quality Assessment, UNEP Live, GEO assessments and SDG monitoring (GEMI):</p> <p>Revision of existing and development of new view, download and search web services based on monitoring data, metadata and revised and new data products to further improve interoperability with other data centres and global information systems.</p> <p>Revision of metadata catalogue to publish updated monitoring metadata documents.</p> <p>Review and update of previously developed water quality indices</p> <p>Revision of load estimations based on harmonized GEMStat and GRDC data management systems.</p>	<p>January 2015 – August 2016</p> <p>May 2016 – December 2016</p> <p>June 2016 – December 2016</p> <p>August 2016 – February 2017</p> <p>February 2017 – August 2017</p>
Task 2.2	<p>Data acquisition, quality assurance and dissemination</p> <p>Quality-control and import of data submissions from existing</p>	continuous

	<p>and new partners of the Global Monitoring Network into GEMStat.</p> <p>Provision of monitoring data and derived data products to UNEP supporting the regional and global GEO assessments and for enhancing the UNEP Live thematic page on water.</p> <p>GPCU works with the GEMS/Water DC and CDC to carry out a next round of Performance Evaluation Study (PE) – ideally once every two years (subject to availability of funds).</p>	<p>June 2016 onwards</p> <p>tbc. April - September 2017</p>
Task 2.3	<p>Data product development</p> <p>Development of new maps of the GEMStat station network and water quality maps for selected water quality parameters.</p> <p>The Data Centre is supporting the development of satellite remote sensing water quality products for selected water bodies in partner countries within the ESA-funded project SPONGE.</p> <p>Development of water quality reports for selected water quality parameters and indices at country and catchment level.</p>	<p>April 2016 – October 2016</p> <p>March 2015 – April 2017</p> <p>October 2016 – June 2017</p>
Task 2.4	<p>SDG indicator development and implementation</p> <p>Development of GEMS/Water based indicator for targets 6.3.2 (ambient water quality) and feeding into 6.6.1 (water related ecosystems).</p> <p>Contribute to Proof of Concept process of the project “Monitoring water and sanitation in the 2030 Agenda for Sustainable Development”, GEMI, coordinated by UN-Water – coordination with Freshwater and Ecosystems Unit in DEPI and UN-Water</p> <p>Collecting water quality data to inform the state of departure for SDG 6 relevant indicators and feed into the GEMI baseline report (coordination with UN-Water).</p> <p>Continue the support and flow of indicator related data generated in the course of the GEMI project are accessible to GEMStat.</p>	<p>Mid 2015 – end 2016</p> <p>April – December 2016</p> <p>End 2017 - 2018</p> <p>2018 and following</p>
Task 2.5	<p>Standardization of data and metadata exchange</p> <p>Development of a revised ISO 19115/19139-compliant metadata profile for national monitoring networks and single sampling sites and generating updated metadata documents.</p> <p>The Data Centre will contribute to on-going standardization efforts for exchanging water quality monitoring data in the context of the OGC/WMO Hydrology Domain Working Group working towards a water quality profile of the WaterML 2 data exchange standard.</p>	<p>April 2016 – December 2016</p> <p>June 2016 – December 2017</p>
Milestones		
DC M1	GEMStat data management system operational and first version of revised information system online.	September 2016
DC M2	Interactive maps for selected water quality parameters at sampling sites, at country and catchment level developed,	November 2016

	published through view services and embedded in GEMStat and UNEP Live.	
DC M3	Access to aggregated monitoring data and baseline statistics through download services established, embedded in GEMStat and linked to UNEP Live.	November 2016
DC M4	Metadata profile revised, metadata documents updated and published through revised metadata catalogue.	January 2017
DC M5	Water quality indices revised and embedded in GEMStat.	March 2017
DC M6	Remote sensing water quality data products for selected water bodies in six partner countries developed.	May 2017
DC M7	Water quality reports developed and embedded in GEMStat.	July 2017
DC M8	Load estimations revised and embedded in GEMStat.	September 2017
DC M9	GEMStat data coverage substantially improved, online information system including revised and new products and web services operational.	December 2017
GPCU M10	Earmarked funding for Performance Evaluation has been secured and GPCU works with Partners on a new round of Laboratory Performance Evaluation Experiments (PE).	September 2017
GPCU M11	GEMS/Water is instrumental in and supporting the GEMI (SDG 6) baseline development.	2018 (1st have tbc)

Capacity Development

WP-3	Capacity Development	
Responsible	GEMS/Water Capacity Development Centre	
Objectives	<ul style="list-style-type: none"> • Review and assess capacity development needs for enhanced participation in the GEMS/Water Programme and associated SDG 6 monitoring on a regional basis, with a particular emphasis on the African region • Update existing training course materials and/or develop new training materials in line with the outcome of the capacity development needs assessment • Work with GEMS/Water Regional Hubs, especially the Regional Hub for LAC in Brazil, to develop relevant training materials or to align their existing training programmes to meet the objectives of the GEMS/Water Programme • Develop training materials on water quality monitoring and assessment that can be delivered in a workshop or distance learning format (using portable memory or on-line platforms) • Organise and participate in national and regional training workshops on water quality monitoring, assessment and quality assurance • Host and support water scientists, technicians and managers in tailor-made water quality training, assessment and reporting as needed. 	
Task 3.1	<p>Capacity Development Needs Assessment</p> <p>During 2016-17, activities will focus on understanding the requirements of countries for capacity building by means of a scoping exercise. The exercise will have three components: African countries with which Irish Aid has partnerships (Ethiopia, Lesotho, Liberia, Malawi, Mozambique, Sierra Leone, South Africa, Tanzania, Uganda, Zambia, and Zimbabwe); other African countries; other world regions.</p> <p>The existing operational capacity for national-level monitoring and assessment, together with existing levels of expertise and skills in national/local water authorities and their laboratories will be assessed. The scoping exercise will also assist in identifying (sub)-regional Partnerships, including GEMS/Water Regional Hub(s), that can be developed to ensure sustainability of the capacity building beyond the duration of the project.</p>	February 2016 – March 2017
Task 3.2	<p>Capacity Development Strategy</p> <p>The results of the needs assessment will be used to determine priority capacity development needs in Africa and the other world regions and to put together a detailed capacity development programme for delivery in the region from 2017 onwards. This will include training the trainers from technical to advanced education levels.</p> <p>The assessment will also inform the recommended approach to the delivery of training in the different world regions, including locations, mode of delivery (workshops or on-line), as well as the topics and level of complexity of training that needs to be developed.</p>	December 2016 – May 2017

<p>Task 3.3</p>	<p>Training material development</p> <p>Existing training materials provided by previous GEMS/Water partners, Regional Hubs and other regional training facilities, will be evaluated with respect to the results of needs assessment. If necessary, these materials will be modified or new materials will be developed. Content for training courses will be prepared by staff and partners in the CDC and Data Centre, and reviewed by GEMS/Water partners and other appropriate organisations.</p> <p>The preparation and testing of templates for use at workshops, in electronic and on-line delivery formats began in 2015. Materials will initially be developed for use in Africa, and will subsequently be modified and adapted for use in other world regions.</p> <p>The CDC will contribute to coordination and development of training and capacity development in the course of the GEMI implementation – collaboration with FEU in DEPI and UN-Water in the Proof of Concept phase and throughout the GEMI implementation.</p> <p>Samples of electronic and on-line delivery course material will be made available for review and feedback at UNEA 2 in May 2016, at GEMI POC workshops in 2016 and the Scoping Workshop in Africa, and will be circulated to partners for review and comment.</p> <p>Two short courses will be finalised and made available for on-line delivery during 2016-17.</p>	<p>November 2015 – June 2017</p> <p>April – December 2016 (POC) and subsequent years</p> <p>April 2016 – December 2016</p> <p>May 2016 – June 2017</p>
<p>Task 3.4</p>	<p>Training activities and workshops</p> <p>A minimum of three workshops are planned for 2016-17. One workshop will focus on determining capacity development needs and preferences for modes of delivery of training in Africa. A further workshop in Africa and another in a different world region will focus on the technical aspects of water quality monitoring and quality assurance.</p>	<p>September 2016 – December 2017</p>
<p>Task 3.5</p>	<p>Update and disseminate GEMS/Water handbooks and guidelines</p> <p>Existing GEMS/Water handbooks and guidebooks will be reviewed every two (2) years and updated as necessary. The new editions will reflect the new emphasis of the GEMS/Water programme on parameters and methods that will be agreed by the Steering Committee and Working Groups in relation to the needs for monitoring progress in relation to the Sustainable Development Goals on water. The GEMS/Water Operational Guide and Analytical Methods Manual will be updated in 2016 in conjunction with the GEMS/Water Data Centre and made available on the web. If the capacity development needs assessment identifies a requirement for additional handbooks or guidebooks, they will be developed in 2017 in conjunction with the Data Centre and UNEP GPCU.</p>	<p>September 2016 – December 2017</p>

Milestones CDCM1	GEMS/Water Capacity Development Centre web site and capacity development information leaflets and promotional material	May 2016
CDCM2	Sample training materials for SDG target 6.3.2	May 2016
CDCM3	Training needs assessment for Ethiopia, Lesotho, Liberia, Malawi, Mozambique, Sierra Leone, South Africa, Tanzania, Uganda, Zambia, and Zimbabwe	December 2016
CDCM4	New editions of the GEMS/Water Operational Guide and the Analytical Methods Manual	December 2016
CDCM5	Two (2) test training modules for use in Latin America	December 2016
CDCM6	Water Quality Monitoring training strategy for Ethiopia, Lesotho, Liberia, Malawi, Mozambique, Sierra Leone, South Africa, Tanzania, Uganda, Zambia, and Zimbabwe	February 2017
CDCM7	Training needs assessment and strategy for Asia, Europe, Latin America and the Caribbean, North America and Oceania	February 2017
CDCM8	Training needs assessment for three (3) African regions: Northern Africa; West and Central Africa; East and Southern Africa	March 2017
CDCM9	Water Quality Monitoring training strategy for Northern Africa; West and Central Africa; East and Southern Africa	May 2017
CDCM10	Three (3) training workshops in Africa and two (2) training workshops in Asia and/or Latin America	December 2017

Networking

WP-4	Networking	
Responsible	GPCU and executing partners CDC and DC, Regional Hub(s)	
Objectives	<ul style="list-style-type: none"> Updating, extending and maintaining of the Global Monitoring Network of National and Collaborating Focal Points in the GEMS/Water Network Strengthening GEMS/Water in the regions and enabling regional ownership and participation in the programme to support national monitoring, quality assurance and SDG reporting Linking with and contributing to global and regional scientific and capacity development networks dealing with water quality monitoring 	
Task 4.1	<p>GEMS/Water Global Monitoring Network</p> <p>GPCU works with partners globally and in countries to foster the updating and maintenance of the network of National Focal Points, technical partners and Collaborating Focal Points.</p> <p>GPCU links formally to UNEP Regional Offices to foster regional networks and promote regional ownership based on an agreed catalogue of expectations actions and services.</p> <p>Key executing partners (GEMS DC and GEMS CDC as well as Regional Hub/s) work with National Focal Points and Collaborating Focal Points to activate and strengthen collaboration on water quality monitoring and water quality data access.</p>	<p>ongoing</p> <p>June – September 2016</p> <p>June 2016 - onwards</p>
Task 4.2	<p>GEMS/Water Regional Hubs</p> <p>GPCU engages UNEP Regional Offices to explore new partnerships with countries and identify potential new Regional Hubs to support the regional implementation of the GEMS/Water Programme</p>	<p>June 2016 – onwards</p>
Task 4.3	<p>Global and regional scientific and capacity development networks</p> <p>The Data Centre contributes to the GEO Water Quality Community of Practice to further develop global water quality data products and information. It also participates in the UNESCO IHP International Initiative on Water Quality.</p> <p>The Capacity Development Centre works with partner universities and scientific organisations to explore and establish links globally with organisations that can support and participate in training and other capacity development activities</p>	<p>June 2016 – December 2017</p> <p>ongoing</p>
Milestones		
GPCU M5 (see also WP1)	Contacts to NFPs and CFPs have been re-established and/or revised in close collaboration with Regional Offices and Regional Hub/s; an up to date list of partners in country is available on the web.	December 2016
GPCU M12	UNEP Regional Offices are informed of GEMS/Water and collaborate on regional scale as appropriate	September 2016 - onwards
GPCU M13	GPCU and key executing partners and Regional Hub(s) are in direct contact with an increasing number of Focal Points and foster access to water quality data and support quality control	December 2016 - onwards

GPCU M 14	Further Regional Hub(s) are under consideration and bilateral communication with responsible authorities/institutions established – in cooperation with Regional Offices as appropriate	August 2016 - onwards
DC 10	Co-organize GEO WQ CoP Meeting	June 2016

Outreach

WP-5	Outreach	
Responsible	GPCU and key executing partners DC, CDC and Regional Hub(s)	
Objectives	<ul style="list-style-type: none"> • Raising awareness of the environmental dimension of water quality in the 2030 Agenda for Sustainable Development • Raising awareness and encourage participation in the GEMS/Water monitoring programme and water quality assessment 	
Task 5.1	<p>Communicate GEMS/Water activities and outcomes through UNEP's and partner websites</p> <p>GPCU coordinates outreach and updating of GEMS/Water information through the GEMS/Water and partner websites;</p> <p>GCPU and key executing partners feature water quality information, related assessment findings and case studies on their individual and UNEP Live thematic Water page; initial demonstrations of GEMS web services on UNEP Live;</p> <p>The Capacity Development Centre has developed a web site that provides information on its services, activities, contacts and news (https://www.ucc.ie/en/gemscdc/). This site will be linked to the main GEMS/Water website.</p> <p>The web site of the Data Centre providing information on the services and activities is being developed and will be embedded into the website of the ICWRGC.</p>	<p>ongoing</p> <p>July 2016 - onwards</p> <p>January 2016 - December 2017</p>
Task 5.2	<p>Produce and disseminate information materials</p> <p>Pull-up banners, information leaflets and posters promoting Capacity Development activities have been developed in English and further versions will be produced in French. The Capacity Development Centre will make information leaflets available on the web sites and will distribute them at every relevant opportunity, such as international fora, conferences, workshops etc.</p>	January 2016 – December 2017
Task 5.3	<p>Participate in key international & regional water events to raise the profile of water quality at policy and other levels</p> <p>GEMS/Water Global Programme Coordination Unit, GCPU, coordinates and arranges presence and visibility during UNEA side events, SFP sessions and in related exhibitions</p> <p>GEMS/Water GCPU coordinates with key executing partners presence and outreach in relevant water events (e.g. World Water Week, Regional Water weeks etc.)</p>	<p>May 2016</p> <p>Annually or as appropriate</p>

	<p>Informing the water quality related components in the SDG 6 monitoring implemented through the GEMI programme (Proof of Concept workshops and beyond)</p> <p>The Capacity Development Centre will take part in the Science Policy Forum and water side event at UNEA 2 in 2016, the Africa Water Week in 2016 and 2017, Stockholm World Water Week 2016 and 2017 and/or other international events as appropriate.</p> <p>The Data Centre promotes the Programme activities also through the water programmes of UNESCO (IHP) and WMO (HWRP), participating in IHP Category II Centre meetings (Beijing, May 2016), the international Kovacs Colloquium (Paris, June 2016) and the next assembly of the WMO Commission for Hydrology (Geneva, December 2016)</p>	<p>April 2016 - onwards</p> <p>May 2016 – on occasion</p> <p>May 2016 – on occasion</p>
Milestones	•	
GPCU M 15	GEMS/Water website updated and case examples of assessment products and services featured on partner and UNEP sites	ongoing
GPCU M 16	UNEA presence of the GEMS/Water and resulting assessments organized with partners	May 2016
GPCU M 17	Presence in relevant water events agreed and arranged with partners	ongoing
DC 11	DC website online	August 2016

Milestones – Summary in chronological order

Work Package	Description	Related Task	Main responsible	Type	Due
Outreach	GEMS/Water website updated and case examples of assessment products and services featured on partner and UNEP sites	Task 5.1	GPCU	www	ongoing
Outreach	Presence in relevant water events agreed and arranged with partners	Task 5.3	GPCU	Talks etc.	Ongoing
Project Manag.	Involvement in GEMI and interaction with DEPI's FEU and UN-Water are operational.	Task 1.1	GPCU		Ongoing
Capacity Dev.	GEMS/Water Capacity Development Centre web site and capacity development information leaflets and promotional material	Task 5.1	CDC	www	May 2016
Capacity Dev.	Sample training materials for SDG target 6.3.2	Task 3.3	CDC	Doc	May 2016
Outreach	UNEA presence of the GEMS/Water and resulting assessments organized with partners	Task 5.3	GPCU	Talk, booth	May 2016

Project Manag.	The GEMS/Water Global Programme Coordination Unit has recruited staff according to the work plan and new staff is knowledgeable of the programme, donors, partners and the steps of implementation.	Task 1.2	GPCU		Jul 2016
Project Manag.	The Work Plan is agreed by donors, partners and the Steering Committee and Working Groups.	Task 1.1	GPCU	Doc	Jul 2016
Network	Further Regional Hub(s) are under consideration and bilateral communication with responsible authorities/institutions established – in cooperation with Regional Offices as appropriate	Task 4.2	GPCU		From Aug 2016
Outreach	DC website online	Task 5.1	DC	www	Aug 2016
Project Manag.	The GEMS Steering Committee Meeting is planned and arranged for second half 2016.	Task 1.1	GPCU	Date	Sep 2016
Project Manag.	Workshops and meetings of partners e.g. Needs Assessment for Capacity Development in Africa are supported.	Task 1.1	GPCU	Doc	Sep 2016
Data	GEMStat data management system operational and first version of revised information system online.	Task 2.1	DC	www	Sep 2016
Network	UNEP Regional Offices are informed of GEMS/Water and collaborate on regional scale as appropriate	Task 4.1	GPCU	Doc	From Sep 2016
Data	Interactive maps for selected water quality parameters at sampling sites, at country and catchment level developed, published through view services and embedded in GEMStat and UNEP Live.	Task 2.3	DC	www	Nov 2016
Data	Access to aggregated monitoring data and baseline statistics through download services established, embedded in GEMStat and linked to UNEP Live.	Task 2.1	DC	Data	Nov 2016
Network	Contacts to NFPs and CFPs have been re-established and/or revised in close collaboration with Regional Offices and Regional Hub/s; an up to date list of partners in country is available on the web.	Task 4.1	GPCU	Doc, www	Dec 2016
Capacity Dev.	Training needs assessment for Ethiopia, Lesotho, Liberia, Malawi, Mozambique, Sierra Leone, South Africa, Tanzania, Uganda, Zambia, and Zimbabwe	Task 3.1	CDC	Doc	Dec 2016
Capacity Dev.	New editions of the GEMS/Water Operational Guide and the Analytical Methods Manual	Task 3.5	CDC	Doc	Dec 2016
Capacity Dev.	Two (2) test training modules for use in Latin America	Task 3.4	CDC	Doc	Dec 2016

Network	GPCU and key executing partners and Regional Hub(s) are in direct contact with an increasing number of Focal Points and foster access to water quality data and support quality control	Task 4.1	GPCU	Data	From Dec 2016
Project Manag.	Reporting obligations are met in a timely fashion in collaboration with FMO and with partners, findings of past evaluation of GEMS are considered and reported on.	Task 1.3	GPCU	Doc	2016 recurring
Project Manag.	A GEMS/Water Fundraising Strategy is developed and under implementation – contacts to further donors are established.	Task 1.2	GPCU	Doc	From 2017
Data	Metadata profile revised, metadata documents updated and published through revised metadata catalogue.	Task 2.5	DC	Doc	Jan 2017
Capacity Dev.	Water Quality Monitoring training strategy for Ethiopia, Lesotho, Liberia, Malawi, Mozambique, Sierra Leone, South Africa, Tanzania, Uganda, Zambia, and Zimbabwe	Task 3.1	CDC	Doc	Feb 2017
Capacity Dev.	Training needs assessment and strategy for Asia, Europe, Latin America and the Caribbean, North America and Oceania	Task 3.1	CDC	Doc	Feb 2017
Data	Water quality indices revised and embedded in GEMStat.	Task 2.4	DC	Doc, www	Mar 2017
Capacity Dev.	Training needs assessment for three (3) African regions: Northern Africa; West and Central Africa; East and Southern Africa	Task 3.1	CDC	Doc	Mar 2017
Data	Remote sensing water quality data products for selected water bodies in six partner countries developed.	Task 2.3	DC	Data	May 2017
Capacity Dev.	Water Quality Monitoring training strategy for Northern Africa; West and Central Africa; East and Southern Africa	Task 3.3	CDC	Doc	May 2017
Project Manag.	GEMS/Water related Project Document for implementation in the next Programme of Work is developed, reviewed and submitted.	Task 1.1	GPCU	Doc	Jun 2017
Data	Water quality reports developed and embedded in GEMStat.	Task 2.3	DC	Doc	Jul 2017
Data	Load estimations revised and embedded in GEMStat.	Task 2.1	DC	Data	Sep 2017
Data	Earmarked funding for Performance Evaluation has been secured and GPCU works with Partners on a new round of Laboratory Performance Evaluation Experiments (PE).	Task 2.2	GPCU	Doc	Sep 2017
Data	GEMStat data coverage substantially improved, online information system including revised and new products and	Task 2.1/2.3	DC	Data	Dec 2017

	web services operational.				
Capacity Dev.	Three (3) training workshops in Africa and two (2) training workshops in Asia and/or Latin America	Task 3.4	CDC	Work-shop	Dec 2017
Data	GEMS/Water is instrumental in and supporting the GEMI (SDG 6) baseline development.	Task 2.4	GPCU	Data	From 2018

Monitoring and Evaluation/Reporting

Report	Description	Responsible	Recipient	Due/Frequency
[R- 1]	Progress Reporting	GEMS GPCU	PIMS	30.06. & 31.12 /biannual
[R- 2]	Progress Reporting	GEMS GPCU	IMDIS	
[R- 3]	Progress & Financial Report	GEMS GPCU, FMO,	Irish Aid	30.06. & 31.12 /biannual
[R- 4]	Progress & Financial Report	GEMS GPCU, FMO	MECLG	31.12. annual
[R- 5]	Progress Reporting	DC	UNEP	annual
[R- 6]	Progress Report DC	DC	BMUB	31.03 & 31.09 /biannual
[R- 1]	Progress Report CDC	CDC	UNEP	31.03 & 31.09 /biannual
[R- 2]	Financial Report CDC	CDC	UNEP	30.06 & 31.12 /biannual
[R- 3]	Mission reports		All	One month after mission
[R- 4]	Training workshop reports			Two months after workshop
[R- 5]	Working group meeting reports			One month after meeting

Acronym	Description
AMD	Analytical Methods Dictionary
ANA Brazil	The National Water Agency (Agência Nacional De Águas) of Brazil, hosting the GEMS/Water Regional Hub for Latin America, the Caribbean and Portuguese speaking countries
BfG	The German Federal Institute for Hydrology
BMUB	The German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety
BMVI	The German Federal Ministry of Transport and Digital Infrastructure
CDC	The GEMS/Water Capacity Development Centre hosted by UCC
CFP	GEMS/Water Collaborating Focal Point
DC	The GEMS/Water Data Centre coordinated by the ICWRGC and hosted by BfG
DECLG	The Irish Department of Environment, Community and Local Government
DEPI	Division of Early Warning and Assessment
DEWA	Division of Environmental Policy Implementation
DFAT	The Irish Department of Foreign Affairs and Trade
ERI	Environmental Research Institute at UCC
EPA	Irish Environment Protection Agency
FAO	Food and Agriculture Organisation
FEU	Freshwater Ecosystem Unit
FMO	Fund Management Office
GEMI	UN Inter-agency initiative on Monitoring Water and Sanitation in the 2030 Agenda for Sustainable Development
GEMS/Water	The Global Environment Monitoring System on Water
GEMStat	The GEMS/Water global water quality information system
GEO	Global Environment Outlook
GEO/GEOSS	The Group on Earth Observations/The Global Earth Observation System of Systems
GPCU	The GEMS/Water Global Programme Coordination Unit located in UNEP HQ, Nairobi

GRDC	Global Runoff Data Centre
HDWG	Hydrology Domain Working Group
IAEA	International Atomic Energy Agency
ICWRGC	The International Centre for Water Resources and Global Change (UNESCO Category II Centre hosted by BfG)
IHP	The International Hydrological Programme of UNESCO
IIWQ	The UNESCO IHP International Initiative on Water Quality
IMDIS	Integrated Management and Document Information System
NFP	GEMS/Water National Focal Point
OGC	Open Geospatial Consortium
PE	Performance Evaluation
PIMS	Project Information and Management System
PoW	Programme of Work
QA	Quality Assurance
QC	Quality Control
RO	UNEP Regional Office
ROA	UNEP Regional Office for Africa
ROAP	UNEP Regional Office for Asia and the Pacific
ROLAC	UNEP Regional Office for Latin America and the Caribbean
RONA	UNEP Regional Office for North America
ROWA	UNEP Regional Office for West Asia
SC	GEMS/Water Steering Committee
SDG	Sustainable Development Goal
UCC	The University College Cork (Ireland)
UNEA	United Nations Environment Assembly
UNEP	United Nations Environment Programme
UNESCO	The United Nations Educational Scientific and Cultural Organization

UNV	United Nations Volunteer
WaterML	Water Markup Language
WHO	The World Health Organization
WMO	The World Meteorological Organization
WQ	Water Quality
WWQA	World Water Quality Assessment