



GEMS/Water Strategy 2020-2024 – Ver. 19 November 2019

Section 1: Executive Summary

This document outlines a strategy to guide the operations and workplan development of the UN Environment Programme Global Environment Monitoring System for Freshwater (GEMS/Water) up to the end of 2024.

By adopting the dedicated goal on water in the 2030 Agenda for Sustainable Development, countries worldwide recognize the central role of water and the entire hydrological cycle in achieving prosperity, human and ecosystem health. The challenge lies in localizing the “Water Agenda 2030” and having knowledge and services at hand that can be operationalized and help prioritize targeted action. The UN Environment Assembly (UNEA) has mandated GEMS/Water to keep the state of the world’s freshwater resources under continuous review.

The strategy describes the global water quality challenge which covers a broad variety of scales in spatial and temporal terms, as well as in the context of actors involved. Addressing those dimensions calls for a broad, participatory and dynamic, constantly reviewed and demand-oriented approach which can rely on a multidisciplinary expert and user community. In addressing this global challenge, the strategy proposes transformative change in the operational framework of GEMS/Water. It builds on a SWOT (strengths, weaknesses, opportunities, threats) analysis of the current programme and applies the Theory of Change as the method for formulating the new GEMS/Water Programme.

Allied with this new approach is the formation of a *World Water Quality Alliance*, whose aim is to convene a community of practice and pool expertise, and innovators to develop a data fusion approach and a science technology innovation platform to (i) deliver a global assessment of the world water quality which in the medium term shall comprise surface and groundwater; (ii) identify and investigate current and emerging water quality challenges and, (iii) build partnerships for solutions at scale (via <https://communities.unep.org/category/gemswater>).

Embedded through UNEP in the global UN-Water coordination, GEMS/Water will in particular be a central pillar in the Alliance as the data and information hub, as well as the nucleus for setting standards and developing tools for tailored capacity development at scale and technology innovation. By feeding into the work of the Alliance, while co-benefitting from capacities, expertise, networks and deliverables of the Alliance and its partners such as WMO, FAO, WHO, IAEA and UNESCO, to name a few, GEMS/Water maximises synergies with an active global, inclusive multi stakeholder community. This approach will enable

GEMS/Water to be instrumental in informing a baseline on water quality from global to lower relevant scale and, by connecting with other Alliance members ranging from public, private, UN and civil society sectors, to reveal the implications and drivers at hotspots.

Following the problem statement and intervention logic the resulting Theory of Change led to the identification of the following three strategic goals for the future GEMS/Water Programme:

1. **GEMS/Water provides access to and supports use of quality assured, open environmental data, analyses and participatory processes to Governments and stakeholders enabling updated water quality assessments, including emerging issues;**
2. **GEMS/Water network partners provide standardized, tailored and flexible capacity development for various stakeholders and support water quality monitoring, analysis and policy action at relevant scales including at country and community level;**
3. **GEMS/Water operates as a core actor in the World Water Quality Alliance providing and receiving partnership support and assisting countries in the achievement of the 2030 Agenda for Sustainable Development, specifically Goal 6 and water related targets by leveraging knowledge products in national and regional water sector science policy action.**

To achieve these goals the new GEMS/Water Programme will be re-formulated around four operational pillars:

1. GEMS/Water Capacity Development Platform
2. GEMS/Water Data and Services Platform
3. GEMS/Water Global Coordination and Network
4. GEMS/Water Engagement and Communications Platform

Each pillar has a well-defined set of deliverables to be reflected in work-packages in the future work plans that bring benefits to different groups of stakeholders. The strategy includes a value proposition, identifying clear, measurable and demonstrable benefits that stakeholders and Alliance members will enjoy by participating in the GEMS/Water programme and aligning their activities with the GEMS/Water brand.

The re-cast GEMS/Water Programme has been costed at approximately US\$17,000,000 over the 5-year period 2020-2024 (current estimate). A summary of the aspirational budget featuring main operational components and including a listing of currently mobilized resources is a living document, that will be updated regularly. The aspirational budget will be made available online¹.

The strategy is a living document and will be implemented relying on active engagement, adequate financial support and communications reflecting in regular updates of operational work-plans for annual approval. The strategy provides a short introduction of those key support actions fostering engagement, sketching the financial mechanism and fundraising (including current co-funding), as well as communications and outreach.

The GEMS/Water strategy requires a monitoring and evaluation (M&E) mechanism that will provide the Steering Committee and, at the end of the next funding period, the donors and UNEP with the feedback necessary to assess progress being made in implementing the strategy.

¹ <https://communities.unep.org/display/gemswater>

Section 2: Vision and Value Proposition

Vision

GEMS/Water is the principal global platform mandated by the UN Environment Programme Member States to work with custodians of data on the quality of freshwater resources and to support decision-making for the achievement of the 2030 Agenda goals and targets related to the sustainable use of the world's freshwater for the public good, for human and ecosystem health.

Value Proposition

GEMS/Water – monitoring the world's freshwater resources – developing capacities - informing water quality assessments and decisions on action for sustainable use of freshwater by present and future generations

GEMS/Water is the UN Environment Programme mechanism on freshwater monitoring that builds and maintains collaboration amongst stakeholders to keep the state of the quality of the world's freshwater resources under continuous review. It provides services in partnership with multiple local, national, regional and global stakeholders to promote and inform technical and policy action tailored to maintain these resources at a quality sufficient to support both aquatic flora and fauna species and sustainable use by humans. The programme collects and provides access to quality-assured data on the state of the world's freshwater resources, supports the underlying monitoring, and assists Member States in technical and institutional capacity building. GEMS/Water informs assessment and reporting from global to national and local levels and builds the capacities of data suppliers and users. As an active pillar in the World Water Quality Alliance, it fosters science technology innovation to provide an updated inclusive and impartial evidence base of water quality and implications.

Benefits

Engagement on the leading globally mandated UN Programme on freshwater quality and benefiting from the UN Environment Programme convening power and science policy processes in multi stakeholder communities, global assessments and forecasting.

Involvement in global coordination and agenda setting through UNEP's role in UN-Water and in the global multi-stakeholder network of knowledge providers and Community of Practice on water resources, the "World Water Quality Alliance" including assessment and action priority setting in freshwater science, sectoral sustainability concepts and engagement, science technology innovation, modelling and forecasting.

Participation in and co-design of accredited state of the art capacity building globally and at regional, country, sub national or community scale including master and diploma courses, specialized modules and technical guidelines on monitoring the quality of freshwater resources including access (via <https://gemstat.org/>) to state of the art available data and services.

The following figure illustrates the operational GEMS/Water pillars supporting the value proposition by outlining the main implementation elements, their outputs/products and beneficiaries.

Mission Statement

The Global Environment Monitoring System for Freshwater (GEMS/Water) of the UN Environment Programme provides quality assured data to keep the state of the world's freshwater resources under continuous review, develops capacity of member states, and provides information and services across the science-policy-public interface advocating the 2030 Agenda for Sustainable Development.

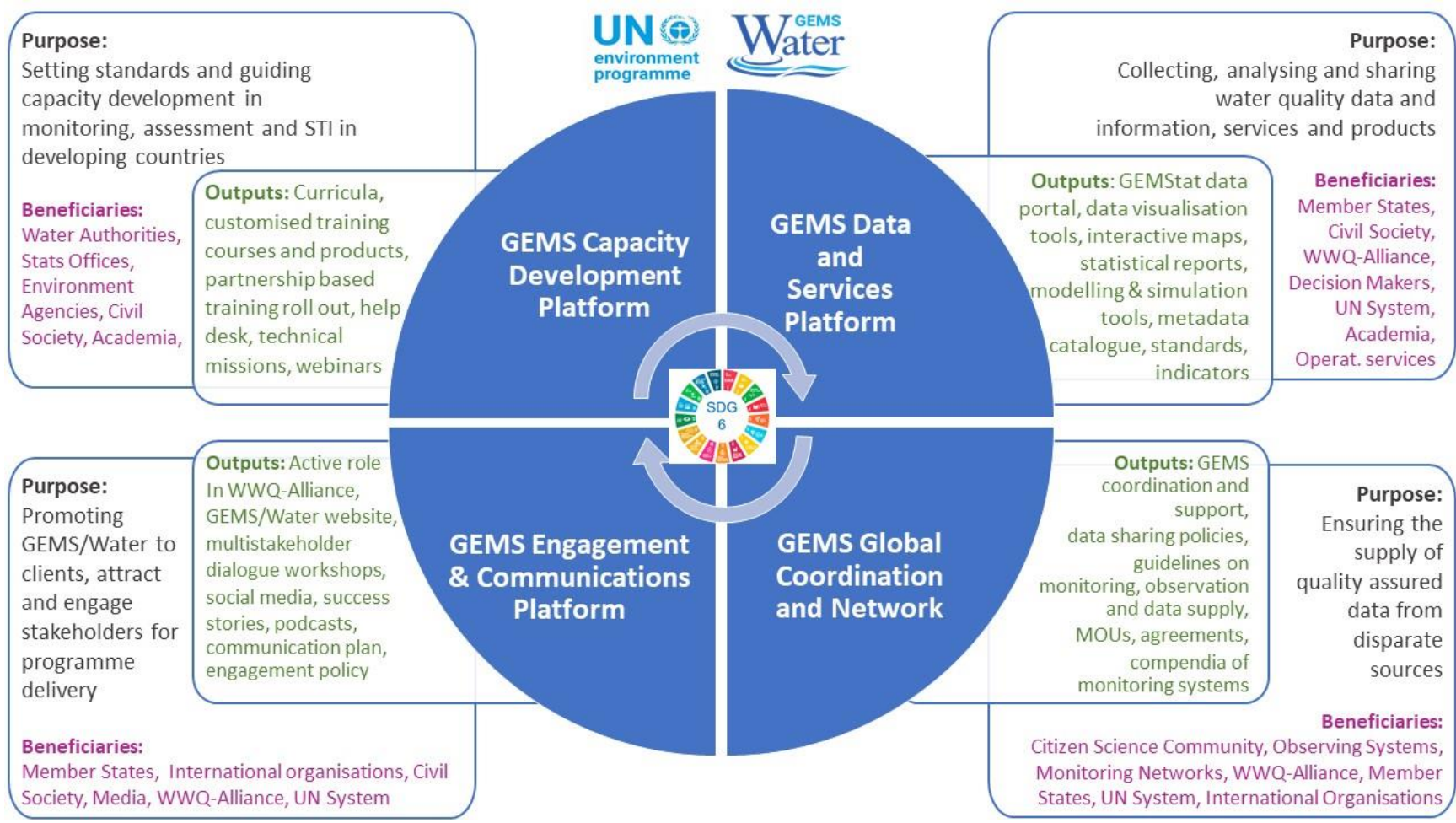


Figure 1: Operational pillars of GEMS/Water and key examples of outputs and beneficiaries – illustrating the value proposition at scale

Section 3: SWOT Analysis

Strengths

- The convening power of the United Nations Environment Programme bringing together political, technical and scientific expertise against globally approved mandates including its custodian role in multiple SDGs and the environmental responsibility.
- The tripartite structure of three Centres of Excellence, including the Capacity Development Centre, the global Data Centre and departmental research institution supported by the GEMS/Water Global Coordination Unit in UNEP, leads to a high degree of technical and scientific credibility.
- GEMS/Water represents a recognised brand with a long history of engagement and a good reputation in the developing world and beyond.
- GEMS/Water has the authority, intergovernmental mandate and necessary competencies to engage with countries individually.
- Globally, there is a clear niche for the GEMS/Water programme focus on ambient water quality and, there is high demand for the programme deliverables; since 2015 in particular also in its operational role to support the 2030 Agenda for Sustainable Development and its dedicated Water Goal (SDG 6).
- Capacity development activities have established institutional contacts across the regions and are keeping people engaged in the programme.
- The setting of the GEMS/Water Data Centre in the International Centre for Water Resources and Global Change with close links to the German Federal Institute of Hydrology (BfG), and relevant UN-Water programmes and agencies such as UNESCO and WMO underpins the potential for developing products for operational services.

Weaknesses

- Insufficient funding and partner networks.
- constantly growing and expected future demand for GEMS/Water services including in the mandate to support Member States on SDG 6 monitoring, reporting and informing action surpassing available capacity.
- Lack of a clear value proposition for countries to join GEMS/Water.
- A programme structure relying on too few (or small) centres and coordination unit with mounting individual responsibilities and requiring sophisticated communication protocols within GEMS/Water and their continuous up-dating.
- Lack of visibility of the GEMS/Water Trust Fund as an instrument for Member States to engage and provide support within the UN Environment Programme and to the global water agenda.

Opportunities

- High level of demand from developing countries for GEMS/Water services.
- The continuous and growing need for assistance globally for SDG indicator 6.3.2. including data, capacity development and services (also generating additional funding flows into GEMS/Water partner activities).
- Potential funding from foundations and private sector.
- Positioning GEMS/Water as the preferred global hub and reference for standards for information and assistance for water quality issues – including as a key pillar in the World Water Quality Alliance.
- Increase the efficiency of the existing global network and broaden the GEMS/Water partner network, including to work closer together and synergize with the growing number of World Water Quality Alliance members, inside UN-Water and beyond.
- Establish partnerships in fields such as outreach, social media including operational links with the UNEP Big Data on the Environment for Sustainable Development and Humanitarian Action Strategy.
- The World Water Quality Alliance and Assessment mapping exercise of partners offers opportunity to GEMS/Water to liaise with and be instrumental in a global Alliance with more than 50 partners (as of 8/2019) and to link in situ monitoring to earth and satellite observation, modelling, machine learning and citizen science.
- Share the achievements and accomplishments of GEMS/Water and communicate success stories.

Threats

- Uncertainty of funding will lead to an inability to sustain programme activities, leading in turn to potential clients going elsewhere.
- Uncertainty/variability of the importance given to water quality in policy processes and governance in a rapidly changing socio-political global landscape.
- Risk of inadequate allocation of resources for water quality monitoring at country levels.
- Reluctance of Member States to engage in water quality data sharing and/or SDG 6 reporting due to other reporting commitments – GEMS/Water may assist as a facilitator but will not be able to do so unless properly supported in structure, human resources and technically.
- Inability of GEMS/Water to perform at the optimum level (including achieving all desired outputs and outcomes) because of the weaknesses of the programme may lead to a poor impression of the programme externally and by donors.
- Other ongoing water quality and related monitoring initiatives (such as in UNESCO/IHP, FAO AQUASTAT, WHO/UNICEF JMP etc.) exist and there is need for clearer roles at the UN level.

The results of the SWOT analysis have guided the updating of the GEMS/Water strategy. The approach taken is to build on strengths, minimize weaknesses, seize opportunities and counteract threats.

Section 4: Theory of Change

Framing

Growing water scarcity and pollution are increasingly being recognized as major challenges in the global water crisis (see *World Economic Forum*², the *UNEP 2016 Snapshot report*³ as well as the *World Bank Report “Quality Unknown: The Invisible Water Crisis”*⁴).

Substantial socio-political concern resulted in the 2030 Agenda for Sustainable Development to adopt a dedicated water goal encompassing all aspects of the hydrological cycle and formulating targets that require consideration of all drivers and cooperation of all actors. The UN-Water “Interlinkages” Report (UN-Water 2016⁵) further highlights the multiple dynamic interlinkages between the SDG 6 targets and across other goals. Implications are prominent for human and ecosystem health including biodiversity, the food systems and socio ecological development at large. Deteriorating water quality also comes with considerable equality issues putting those groups at risk that are frequently in direct contact with contaminated water, mostly women and children. The UN Environment Assembly responded by adopting Resolution UNEP/EA.3/Res.10 on ‘Addressing water pollution to protect and restore water-related ecosystems’ in December 2017, expecting the organization to coordinate and provide a World Water Quality Assessment and enhance cooperation on the importance of ambient water quality broadly, by addressing water pollution and protecting and restoring water related ecosystems.

In the inception meeting of the World Water Quality Assessment held in Geneva Nov. 2018 over 40 agencies, following the UNEP call for Expressions of Interest to collaborate, joined to discuss the multiple dimensions of and how to tackle the water quality challenge. This covers a broad variety of scales in spatial and temporal terms as well as in the context of actors involved. Addressing those dimensions calls for a broad, participatory and dynamic, constantly reviewed and demand-oriented approach with GEMS/Water central in providing data and monitoring as well as capacity development platforms and in turn relying on and linking to a multidisciplinary expert and user community. This also addresses water quality in various causal chain relations (nexus perspectives) which range from food systems to health, to sustainable consumption, production and energy not to forget climate forcing and demography. To draw on and maintain the broad engagement required, the Geneva Meeting triggered the emergence of the “World Water Quality Alliance”, with the assessment process as one integral workflow. The following scheme captures the multiple facets of the water quality challenge, its system and social as well as geographical and temporal dimensions.

² World Economic Forum 16 Jan. 2015: <https://www.weforum.org/agenda/2015/01/why-world-water-crises-are-a-top-global-risk/>

³ UNEP 2016. A Snapshot of the World’s Water Quality: Towards a global assessment. United Nations Environment Programme, Nairobi, Kenya.162pp

⁴ Damania, Richard, Sébastien Desbureaux, Aude-Sophie Rodella, Jason Russ, and Esha Zaveri. 2019. *Quality Unknown: The Invisible Water Crisis*. Washington, DC: World Bank. doi:10.1596/978-1-4648-1459-4.

⁵ UN-Water 2016: *Water and sanitation interlinkages across the 2030 Agenda for Sustainable Development*, Geneva.

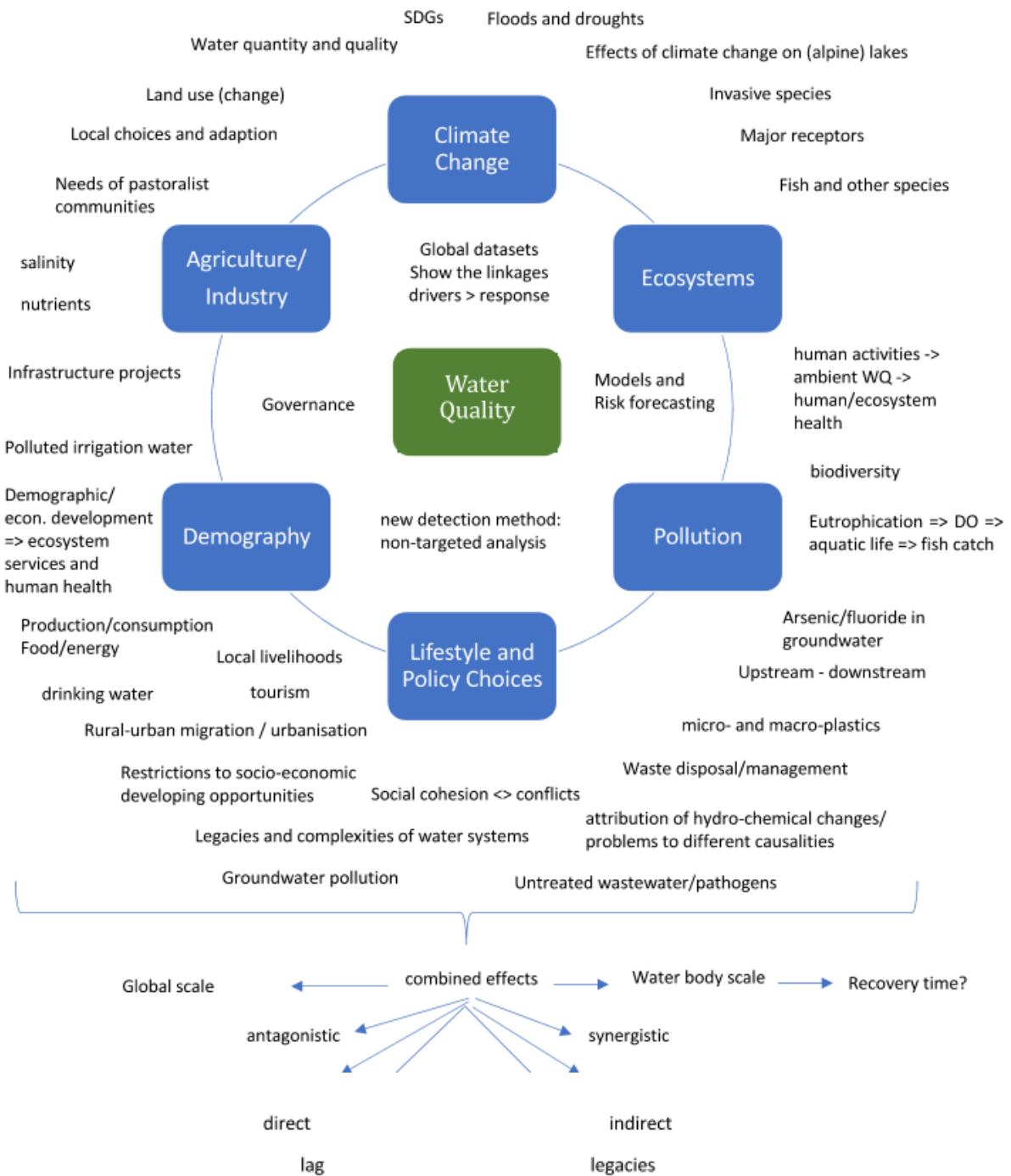


Figure 2: Facets and scales of the Water Quality Challenge, drivers and deficits for attention

Operationally and technically the policy frame set by UNEA and the 2030 Agenda has major implications for GEMS/Water in the UN Environment Programme. After having entered its second phase based on the UNEA GEMS/Water Resolution (UNEP/EA.1/Res.9) of 2014, Member States continuously underline the importance

of quality assured data and their accessibility as well as standardized procedures to improve the monitoring of water quality in the environment (ambient water quality). They recognize that this requires substantial efforts in capacity development in countries, and on regional scale addressing institutional dimensions, data quality and management, collaboration within and across sectors, and technical expertise and skills. GEMS/Water is being identified as a key operational mechanism and Member States are encouraged to work with the programme and receive assistance.

Problem Statement

While there is broad consensus that the combination of monitoring, data analysis and capacity development can collectively inform and support the achievement of the sustainable development goal targets not only in the water realm but also in the many other closely interlinked goals and targets, both, Member States and the technical and scientific community also realize that evidence for action in many regions of the world is unlikely to come from in situ water quality monitoring alone. This is due to several reasons encompassing lack of technical, financial, institutional capacity to monitor or manage the data, unwillingness to share, overburdening with other reporting obligations, political priorities elsewhere or simply the absence of in situ monitoring plans and enabling environments. They also realize (as articulated in the SDG 6 review in the High-Level Political Forum 2018) that the priority scale for action towards transformation is national to local. The underlying challenge is to monitor and derive actionable information that can be operationalised to support this transformation and prove the universality of the 2030 Agenda on those relevant scales. In other words, required is to provide “end to end value chains” of tailored products and services allowing to move from data (from various sources including observations in situ and from satellites, models, machine learning and citizen science and by following standards, protocols, quality assurance and control) via assessment to action.

What are the solutions?

Complementary data including new sources such as earth observation, advanced modelling (including machine learning; artificial intelligence), Community and Citizen Science as well as the combination of those in a science technology innovation (STI) approach need to be mobilized to complement in situ data and monitoring. This is required to achieve consolidated water quality baseline information globally and on relevant scales and enable actionable and long-term operational product development. The role of in situ water quality monitoring is and will remain invaluable as source and evidence base wherever available or promoted and to provide for ground truthing of the information derived from the other sources.

Harmonization of such a data assimilation and analysis innovation requires adequate monitoring in terms of monitoring plans, delineation of water bodies, laboratory certification and standard procedures as well as innovation in measurement technology to be followed. This defines a key role for an advanced GEMS/Water Capacity Development. Such domains of capacity development however need to be complemented by data QA/QC processes and standards, by supporting on the ground, i.e. in country. Innovative tools such as earth observation analytics and processing, as well as Citizen Science approaches are to be fostered (e.g. Horizon 2020 AfriAlliance⁶.) This approach requires training with partners in academia and institutes on advanced

⁶ AfriAlliance: https://www.afrialliance.org/search?search_terms=citizen+science

modelling and artificial intelligence. The continued Capacity Development for Water Quality SDG 6.3.2 as framed in the 2030 Agenda will also require assistance in the calculation and quality assurance of indicator data and particularly, as a next step, the disaggregation of data to inform action at scale. GEMS/Water will therefore:

- a) lead on capacity development standards and module development and
- b) build and convene a community to foster capacity development for monitoring in the above scope tailored for various target audiences and scales;
- c) include strong focus on data and data management related training;
- d) include modern data assimilation and synthesis and
- e) product co-design and development (i.e., mostly an in-country process currently in initial tests by the WWQ-Alliance).

This will also require leadership in empowering and guiding partner networks comprising public bodies, statistical bodies, academia and down to community level as well as private sector on country scale.

In the World Water Quality Alliance GEMS/Water is a key pillar in terms of articulating its demand for support and innovation knowledge from other members as well as in terms of supplying data, knowledge, tools and services and a neutral platform for water quality data and capacity building dialogue and innovation. This addresses a variety of beneficiaries (see Figure 3).

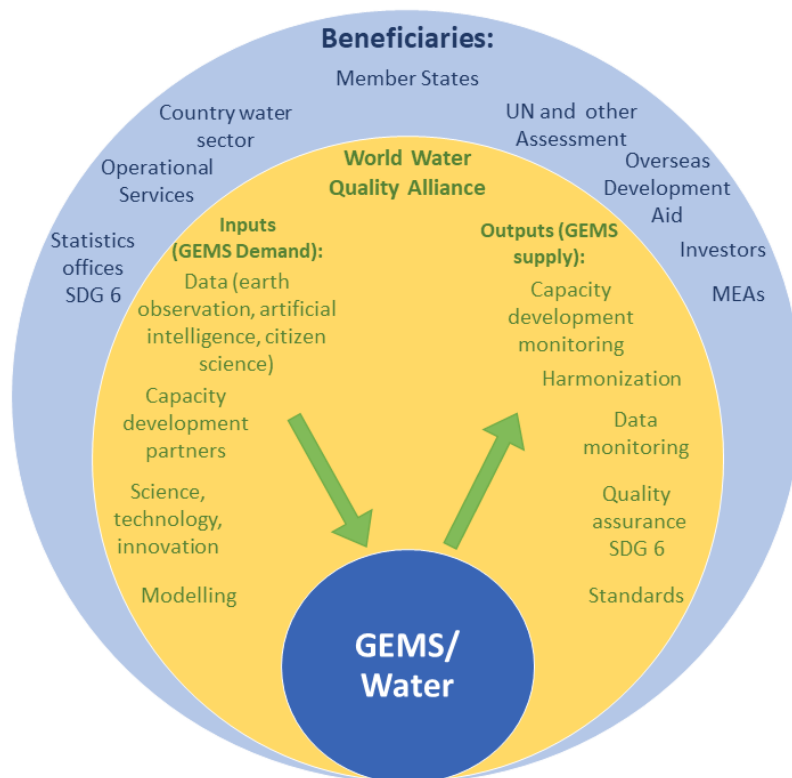


Figure 3: GEMS/Water as a core pillar of the World Water Quality Alliance; displaying its role in demand and supply from and to the partnership.

By fostering the capacity building and standard setting under the UN mandated GEMS/Water brand the programme will be a space to team up with partners from the earth observation, modelling and operational services community to address action on country level. This offers a win-win situation facilitated by a global Alliance sharing common values and objectives, which also mobilizes complementary in kind and cash support from partners. Further to these co-benefits a peer exchange and review process will allow timely adjustment of priorities to match demand. Resulting is an increase in relevance of GEMS/Water going beyond traditional monitoring. The goal is to evolve into a knowledge and capacity development platform in the 2030 Agenda water context and its related goals by provision of an end to end - data to operational product - value chain.

Repositioning GEMS/Water

This approach will enable GEMS/Water to be instrumental in informing a baseline on water quality from global to lower relevant scales and, by connecting with other World Water Quality Alliance members from public, private, UN and civil society sectors to reveal the implications and drivers at hotspots. Thus, GEMS/Water can be operational in guiding priority geographical, temporal and financial scales for action namely by feeding into the nexus dimensions (e.g. economic, health, food, biodiversity, waste) of the World Water Quality Assessment as a recurring global effort of continuous updating. GEMS/Water can take the lead in providing post project links to in country policy advisory or sectoral services at relevant scales for long term operational products co-design and applied intervention. This latter point requires another and new dimension of capacity development that can be developed and guided by GEMS/Water but will be implemented step-by-step with engaging broader networks including local partners.

Governance GEMS/Water

Overall, strategic guidance including review and approval of work plans, advice on resource mobilisation and relevant partner activities to the GEMS/Water Programme is being provided by the Steering Committee (see detailed work plan⁷). The Committee consists of representatives from Donor Governments, UN Environment Programme (chair) and relevant UN-Water members and partners. Key executing partners, i.e. those hosting GEMS/Water components, representatives of regional support partners and/or networks and the GEMS/Water Global Programme Coordination Unit, GPCU, participate as ex-officio members.

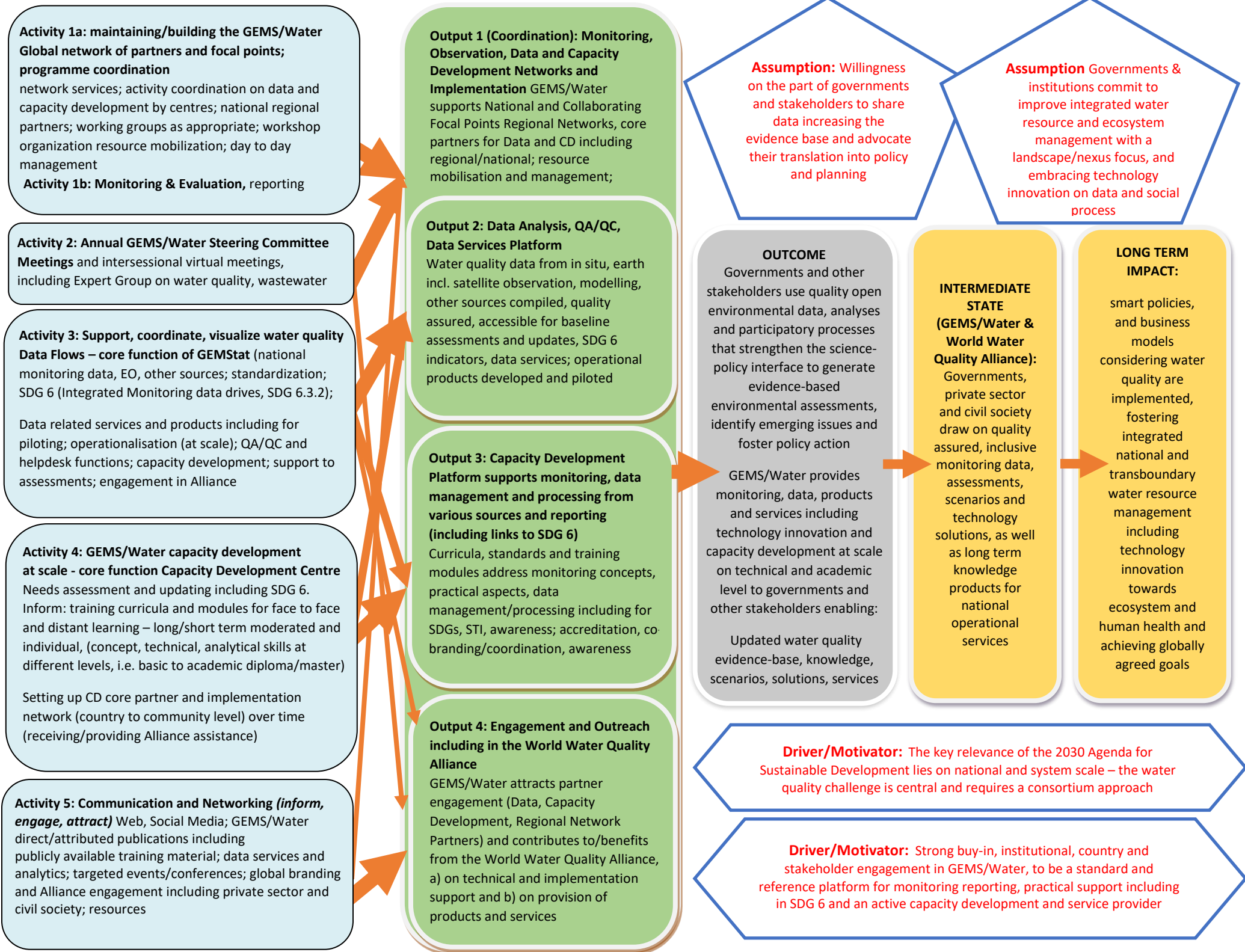
In addition to voting and ex-officio members of the Steering Committee, additional strategic partners, UN and non-UN agencies, regional entities, such as World Bank, GEF, GEO, AMCOW, EEA, UN Environment Regional Offices and relevant experts may be invited by the Steering Committee and/or the GPCU to participate in the meetings of the Steering Committee as observers, advisory in a specific thematic and /or strategic context, as appropriate. Membership on the Steering Committee shall be reviewed annually and revised to ensure best possible support to the GEMS/Water implementation.

⁷ <https://communities.unep.org/display/gemswater>

The Steering Committee is informed and receives annual progress reports compiled by the Global Programme Coordination Unit of the GEMS/Water Programme. It may, as appropriate and requested, enact and receive additional guidance from Thematic Working Groups e.g. for Data and Capacity Development.

As an operational mechanism of the UN Environment Programme GEMS/Water is embedded in relevant thematic and inter-institutional coordination provided by UN-Water. Through its key implementing partners and occasionally donor country representatives GEMS/Water Steering Committee members also engage actively in the agenda setting process, work plan decisions and priority setting of the World Water Quality Alliance. Such members may – subject to election – also participate in one or both of the WWQ-Alliance governance mechanisms, the Technical and/or Strategic Advisory Committees respectively (see WWQ Alliance Modus of operation and governance for detail⁸).

⁸ <https://communities.unep.org/display/WWQA>



Section 5: Strategic Goals for GEMS/Water in reflection of the Problem and the described Intervention Logic

The delivery of the GEMS/Water Programme will be based on the achievement of the strategic goals described here. These goals will be accomplished through a set of well-defined deliverables (products and services) as outlined under each goal. They speak directly to the activities and outputs as displayed in the Theory of Change. Key Performance Indicators (KPI) are included for each goal. Each goal will have a lead core partner/s or will be achieved as a consortium effort under GEMS/Water guidance/leadership.

Goal 1 GEMS/Water provides access to and supports use of quality, open environmental data, analyses and participatory processes to Governments and stakeholders enabling updated water quality assessments, including emerging issues

While all outputs in the Theory of Change (ToC) contribute to this strategic goal, particularly, Outputs 2 and 4 are central to the achievement. Central will be the role of the GEMStat data base and its functionality in the data quality assurance and control as well as the processing to analytical data products (Activity 3). A key challenge in the absence of in situ information in many places of the world is to bring in data from multiple sources including earth/satellite observation, and modelling and to a growing extent citizen science. Partnering with a variety of data providers will require harmonization and interoperability. Those requirements are subject to continued focus in GEMS/Water and form a core workflow including data management, quality assurance/control and analysis. They shall be addressed in capacity development curricula (Output 3). Practical steps reflecting in “Key Performance Indicators” include to:

- provide and maintain a global platform for freshwater data, processed knowledge and data services (GEMStat).
- set the standards for data, data management and inform related capacity development tools and curricula (including with key implementing partners)
- Build, maintain, oversee and convene a broad network of partners for collective global implementation under the GEMS/Water UN mandated brand name
- Engage in the World Water Quality Alliance to seek support and disseminate products into action of other members
- develop workplans (where appropriate collectively with key implementing partners from the data community) for global and downscaled implementation
- engage with STI providers including private sector relevant to the advancement of water quality monitoring, data processing and earth observation

Goal 2 GEMS/Water network partners provide standardized, tailored and flexible capacity development for various stakeholders and support water quality monitoring, analysis and policy action at relevant scales including at country and community level

GEMS/Water, since 2014, has carried out scoping activities in all global regions and has since its onset been involved in the SDG 6 (ambient water quality 6.3.2) methodology development and data drives including the technical assistance to countries. This provided insight in the capacity building needs in countries and regions and clearly revealed limitations of in situ monitoring, delineation of relevant water

body scales and technical and skill issues. It has at the same time underlined the need to complementary methodology to address the data gap and provide the baseline need for SDG target achievement. Output 3 in the TOC captures the scope for a comprehensive capacity development focus in GEMS/Water building on these experiences and which underlines the additional dimensions including to address data quality aspects and management as well as indicator processing – a demand frequently articulated by member states. Activity 4 supported by 3 are the main providers to this Output and reflect the various scales and scope for capacity development content and delivery tools. This is a consortium effort in which GEMS/Water through its Capacity Development Centre shall take a lead. The practical actions that shall reflect in “Key Performance Indicators” comprise:

- set the standards for capacity development tools and curricula and develop those encompassing multiple purposes such as monitoring, conceptual and technical aspects as well as policy dimension (enabling environments)
- address country needs articulated in the recent past such as data, data management as well as processing multi-source data (with key implementing and local partners) to co-create capacity development content
- build, maintain, oversee and convene a network of key implementing partners (including in the World Water Quality Alliance) for collective global implementation under the GEMS/Water UN mandated brand name and
- engage a network of local or national/regional partners to be involved in train the trainer approaches aimed at programme implementation at national or even community scale
- engage in the World Water Quality Alliance to seek support and disseminate products into action of other members
- engage with STI providers including private sector relevant to the advancement of water quality monitoring, data processing and earth observation to develop and apply related capacity development to countries and local users

Goal 3 GEMS/Water operates as a core actor in the World Water Quality Alliance providing and receiving partnership support and assisting countries in the achievement of the 2030 Agenda for Sustainable Development, specifically Goal 6 and water related targets by leveraging knowledge products in national and regional water sector science policy action.

GEMS/Water in its entirety has the experience and the mandate from the global community to support the implementation of the 2030 Agenda and its dedicated water goal with a focus on ambient water quality and its wide implications in human and ecosystem health including nexus interactions. The programme has been instrumental in the development of the methodology (accredited and approved by the Interagency and Expert Group in UNSD) and it has provided support to the initial data drive and synthesis that informed the High-Level Political Forum SDG 6 review in 2018. With external financial support provided by a multigovernmental donor group, this mandate, including to provide technical as well as capacity development leadership, will be continued at least for the period 2020 – 2022. Outputs 2, 3 and 4 are central in the GEMS/Water delivery on this goal. They assist UNEP fulfil its responsibility as a custodian agency for the ambient water quality and two closely related indicators in SDG 6. Data, data analysis as well as in-country and network support on all levels are pivotal and as such Activities 3, 4 and 5, in the TOC contribute. The implementation of these activities co-benefit from the GEMS/Water

engagement as a core pillar in the World Water Quality Alliance by leveraging existing workflows and expertise from partners.

This engagement allows a wide array of synergies to be realized between members. It includes to feed into national or regional projects, “Use Cases”, in which a long-term co-design of operational products for service providers in-country are foreseen (demonstration underway with independent funding). Key is to support the 2030 Agenda water goal globally, both, in terms of providing an appropriate baseline (World Water Quality Assessment) and in-country long-term services proving the universality of the agenda at scale. The active involvement of the UN Resident Coordinators and reflecting water objectives in the “Common Country Analysis” under the United Nations Sustainable Development Cooperation Framework, UNSDCF, are critical in those “Use Cases”. They are actively advocating the step from data to action. Leading activities will comprise:

- regular feeding data and capacity building analysis and products into the global and local SDG agenda – as part of the UN-Water Integrated Monitoring Initiative and the 2030 Agenda science policy process and the UNEP and thematic assessment/s including the Global Environment Outlook and its regional and sectoral focus studies and the World Water Quality Assessment
- positioning GEMS/Water as key pillar in the World Water Quality Alliance
- exploring opportunity for collaboration and liaising with multiple partnerships in new spaces such as the STI and private sector community through collaboration and seeking leadership (e.g. through the World Economic Forum, the Carbon Disclosure Project etc.)
- co-design scalable projects and product application with Alliance and in-country partners to advocate and promote the achievement of the sustainable development goals
- engaging in broad multi-dimensional communication and outreach supported by the Alliance, the science policy processes and social media to continuously raise awareness of the importance of freshwater quality for supporting life and
- reflect results in the UNEP Science-Policy-Business Forum – i.e. inform the need for parallel ecosystem-based approaches and STI to foster technology innovation technically and in terms of social process to improve water management, ecosystem health and wellbeing

Section 6: Partner Engagement Plan

The delivery of the GEMS/Water programme entails active engagement and working with a wide array of external partners at the global, regional and national level (Output 4). As a member of UN-Water, UNEP is well positioned to maximise potential synergies from inter-agency cooperation across the UN System. GEMS/Water can therefore draw on experience and networks from relevant UN-Water members and in return provide leadership and guidance in water quality contexts to activities of those partners.

In this frame, as well as in its active role in the World Water Quality Alliance, GEMS/Water will be involved in a structured “Multi-Stakeholder Engagement Processes”. The goal is to ensure participation, equity, accountability and transparency, as well as to enhance the quality of the work. It is key in building trust between different actors and creating ownership over the outcomes and products, and this will also in the long-term support governance and implementation of policies and models at local scales. The

engagement is advocating mutual benefit across partners, sectoral actors, ultimately the Member States. Engagement platforms for different stakeholder groups include:

- GEMS/Water **Global Network of National and Collaborating Focal Points**: The “traditional” partners of the Programme will continue to play a role as a vital interface between government decision makers in the national water sectors and GEMS/Water as the advocate and global hub for ambient freshwater quality
- As many important bodies of water have a transboundary dimension, GEMS/Water will forge strategic alliances with **River Basin Commissions**, appropriate **Regional Conventions**, and various regional/sub-regional organisations that are supra-national stakeholders in managing transboundary water resources.
- GEMS/Water is seeking to actively engage with **Civil Society** and the **Media** through the promotion of innovative citizen science projects. By bringing data creation, analysis and assessment into the hands of people, such projects are an effective tool to raise understanding and awareness around the subject of ambient water quality and empower communities suffering from natural resource depletion and environmental degradation to assert their right to a clean and healthy environment.
- Through their strategic central role in the **World Water Quality Alliance**, GEMS/Water and its data repository GEMStat are keeping a finger on the pulse of the latest developments regarding science, technology and innovation (**STI**) on the topic of water quality knowledge products, such as earth observation, modelling and operational services.
- A **Capacity Development Network** consisting of local partners with adequate qualifications and credentials (e.g. universities, vocational training institutes, NGOs) will build on the strong foundation of capacity development products that GEMS/Water developed during its 2nd phase to deliver trainings scaled to local needs in countries.
- The **Private Sector** will be engaged by providing an innovation space which aims at fostering the development of products for the public good. Leaderships will be sought with relevant competence partners bringing an array of private sector engagement experience. The Alliance is aimed to provide the framing in form of adequate value propositions for the partnerships.

Section 7: Overview of Financial Mechanisms and Fundraising Plan

The Environment Fund is UNEP’s core source of flexible funds, provided by Member States. It supports the Head of the Global Environment Monitoring, a Senior Programme Officer leading the GEMS/Water Programme. Other staff positions are subject to extra-budgetary contributions in various formats.

The GEMS/Water Trust Fund⁹, established in 2002 and legally valid until 31 December 2021¹⁰, is the financial instrument in place at UNEP to receive financial contributions to support all mandated GEMS/Water programme activities.

⁹ WPL – General Trust Fund to Provide Support to the Global Environment Monitoring System/Water Programme Office and to Promote its Activities

¹⁰ The United Nations Environment Assembly will decide on the extension of this validity during its next session in early 2021.

Several operational elements of the GEMS/Water Programme depend on and benefit from targeted contributions from a variety of sources: The direct support received between 2014 – 2019/20 from the Government of Ireland has enabled operations and product delivery of the Capacity Development Centre and contributed a Programme Officer position to the coordination at the Headquarter. Indirect support by the Government of Germany (2014 – 2024) enables operations and services of the GEMS/Water Data Centre. With growing expectations on in-country engagement, targeted, data-related capacity development and provision of operational products including co-design process engagement in “Use Case” countries a revisiting of the existing support level and considering increase in financial resources allocated to this part of the GEMS/Water is required during the period of this strategy.

Also, the capacity development component, facing an ever-growing demand and complexity namely being actively engaged on regional and in-country level, requires future resource mobilisation for the period captured in this strategy. So does the core staff support at the coordination unit. Some additional support from Nordic country funds has recently been allocated. Through indirect support mobilised by the WWQ Alliance, GEMS/Water can draw on additional resources and in-kind support.

In conclusion, for GEMS/Water both in terms of data, and capacity development, its engagement in achieving transformation at scale over medium and long-term needs a consolidated and increased resource mobilisation in cash and in-kind. A detailed (timely adjusted) table singling out the state of current direct and indirect funds will be available on the web (<https://communities.unep.org/display/gemswater>).

The mobilisation of resources against an operational time frame until 2024 requires further targeted effort. Both the Alliance and Steering Committee Members can be instrumental here. Elements of the resource mobilisation plan up to 2024 will comprise key actions such as:

- Attracting donor contributions to the Trust Fund: All UN Member States will be invited on an annual basis to contribute directly to the Trust Fund as mandated in UNEA Resolution 3/10 2017.
- Large project proposals will be developed by GPCU for consideration by multilateral and bilateral donors (Governments, global/regional banks, EU, philanthropy organisations, etc.)
- Developing country governments will be encouraged to factor freshwater monitoring into the formulation of the environmental component of their respective country development programmes, and Common Country Analysis.
- GEMS/Water will engage in the further development of the Integrated Monitoring Initiative under UN-Water (IM6) to ensure complementary financial support to provide continued assistance to Member States towards achieving the SDGs through advancement of monitoring, reporting and expanded helpdesk functionality.
- The private sector will be engaged where appropriate in supporting freshwater monitoring projects through financial and in-kind contributions with an emphasis on supporting the technical infrastructure needed to support monitoring, data collection and information management.
- Capacity development services with technical focus such as performance evaluation and intercalibration will be provided to national water laboratories subject to availability of core funds for developing countries and/or where possible at a cost recovery basis.

Section 8: Overview of Communications and Outreach Plan

The purpose of this section of the strategy is to elaborate the actions to be taken in delivering Goal 3 of engaging in broad multi-dimensional communication and outreach on freshwater monitoring for supporting life. Promoting the importance of freshwater monitoring and role of GEMS/Water not only to institutional and technical partners but also to a wider audience will be a key deliverable of the communications and outreach work (Output 4 and in general cross-cutting task in Output 1, which represents the day to day implementation of the entire programme).

Communication of the results of the work of GEMS/Water is critical for the work to have influence and desired impact. Rather than just focusing on the dissemination of monitoring and capacity development activities, communication shall be (i) an on-going process throughout the project cycle and (ii) interactive and engaging in nature, enabling two-way information flows. Shifting the style of communication and incorporating new media, social media and data visualization tools and strategies can increase the level of participation and ownership. It also supports collaboration between involved stakeholders.

GEMS/Water will employ various communication channels and modes adapted to different target audiences. By widening the base of engaged partners, the outreach activities will need to reflect the broader scope of GEMS/Water and link it meaningfully to the communication flows of the WWQ Alliance.

UNEP's Science-Policy-Business Forum may provide an engagement platform to communicate water quality along the intersection of those who create data, those who extract knowledge from this data and those who translate this knowledge into policy and action. This platform will help to propel freshwater quality onto higher levels of the freshwater agenda.

Section 9: Monitoring and Evaluation of the Implementation of the Strategy

The GEMS/Water Steering Committee will be responsible for monitoring and evaluating the implementation of the strategy and associated plans. It is proposed that an M&E report be compiled for the annual meeting of the Steering Committee and used as the main reporting tool for tracking progress on implementation.

Having agreed the Key Performance Indicators (KPIs as stipulated in section 5) against the deliverables under each goal, measures will be collected, and metrics calculated from the measures. They will reflect in the annual work plans of GEMS/Water based on the approved strategy.

Section 10: Review and adjustment

The GEMS/Water Strategy will be subject to regular review. Annual Steering Committee Sessions and intersessional consultation as required will decide on needs for adjustment to reflect changes required in scope and/or priorities to allow leveraging opportunities and redirection where strategic for GEMS/Water or achieving optimal synergy with relevant WWQ Alliance activities.