The Royal Society of Chemistry's Written Statement to OEWG2, as it relates to the establishment of a science-policy panel (SPP) for chemicals, waste and the prevention of pollution.

About the RSC

With about 50,000 members in over 100 countries and a knowledge provider that spans the globe, the Royal Society of Chemistry is an international professional body for chemical scientists, supporting and representing our members and bringing together chemical scientists from all over the world. Our members include those working in academia, large multinational companies and small to medium enterprises (SMEs), students, teachers, retirees, government scientists and regulators.

Contact

The Royal Society of Chemistry would be happy to discuss any of the issues raised in our statement in more detail. Any questions should be directed to the RSC Policy & Evidence Team at policy@rsc.org. This document was prepared by Dr Camilla Alexander-White FRSC CChem ERT (Lead Policy Adviser, RSC), Stephanie Metzger (Policy Adviser, RSC) and Professor Tom Welton OBE (the RSC's ambassador for Sustainable Chemicals Policy, Professor of Sustainable Chemistry at Imperial College, London).

This document contains input and perspectives in relation to the anticipated functions of the science-policy panel as outlined in document UNEP/SPP-CWP/OEWG.2/2 :

(a) Undertaking "horizon scanning" to identify issues of relevance to policymakers and, where possible, proposing evidence-based options to address them;

(b) Conducting assessments of current issues and identifying potential evidence-based options to address, where possible, those issues, in particular those relevant to developing countries;

(c) Providing up-to-date and relevant information, identifying key gaps in scientific research, encouraging and supporting communication between scientists and policymakers, explaining and disseminating findings for different audiences, and raising public awareness;

(d) Facilitating information-sharing with countries, in particular developing countries seeking relevant scientific information;

(e) Capacity-building [where the text of this function was still to be agreed, with proposed texts as follows -

> *(a) Provide capacity-building through all the functions of the panel and facilitate technology transfer, in particular to developing countries, to improve the science-policy interface at appropriate levels, including activities to ensure effective, geographically balanced and gender-responsive participation of scientists in the assessments of the panel, strengthen data generation capacity, enhance knowledge and skills that will support country infrastructure and human capacity, and facilitate connection and matchmaking of capacity-related needs and potential solutions;*
>
> *(b) To build capacity to support the functions and work of the panel in order to strengthen the science-policy interface for sound management of chemicals and waste and to prevent pollution.*

Also a statement is presented in relation to the RSC's considerations on 'Operating Principles'.

The Royal Society of Chemistry's written statement to OEWG2 on the Function of Horizon Scanning

UNEA Resolution 5/8 specifies **horizon scanning** as a core function of the new SPP. The draft text on functions was agreed at OEWG 1.2, with the language on horizon scanning as follows:

(a) Undertaking "horizon scanning" to identify issues of relevance to policymakers and, where possible, proposing evidence-based options to address them (UNEP/SPP-CWP/OEWG.1/7, annex II)

The Royal Society of Chemistry (RSC) engaged with members in the international scientific community, including representatives of chemical societies from around the world, on the function of horizon scanning, to make the following suggestions in operationalising this function.

1. **Horizon scanning should focus more on broad concepts and principles than identifying a potentially long list of specific issues. This outlook represents using a 'systems thinking' approach, as compared to a traditional substance by substance approach.**

    a. Horizon scanning should be looking for new general concepts, advanced materials, predicting future adversities from innovations and new sectors, considering safe and sustainable by design concepts and seeking improved principles for the adoption of materials stewardship processes globally.
    b. To be most impactful, horizon scanning could focus also on *uses* of and the monitoring of exposure to chemicals, waste and pollutants, not only their inherent properties.
    c. A life cycle approach should be followed, for both new substances and the changing applications or scale of existing chemical uses, as well as emerging concerns about end-of-life management.
    d. Horizon scanning could also consider new scientific and technological methods and evaluate the need for new analytical tools to properly make sense of emerging issues.
    e. It is still important to take note of specific chemicals, or classes of chemicals, if they are present at global scale and potentially ubiquitous and impactful to human health or environmental species.
    f. Horizon scanning attention should be paid to chemical mixtures and the transformation of chemicals in the environment.

2. **Horizon scanning should be forward looking and take a proactive and protective approach, rather than focusing on well-known, current issues (which would fall under function (b) Conducting assessments of current issues).**

    a. Horizon scanning should focus on the on the known unknowns and the unknown unknowns.
    b. Horizon scanning should be a process which identifies current and future issues of technical capability, that need more research and development, including detecting gaps in the scientific toolkit (e.g. the lack of tools to assess chemical mixtures in the environment) or aspects of transformative change on the horizon in how assessments may be carried out (e.g. the development of new approach methods (NAMs) and next generation risk assessment (NGRA) to replace animal testing methods for chemicals safety evaluation).

c. Searching the scientific literature could help to identify new areas of emerging concern, particularly looking at innovations that could be predicted to cause large scale problems if they were used but not managed well at global scale.

3. The horizon scanning process should welcome input from all stakeholders.

a. All SPP stakeholders, including UN Major Groups, Member States, civil society organisations such as NGOs and universities, indigenous and local populations, and more, should be involved in the horizon scanning process.
b. Horizon scanning should also consider the needs of policy makers so that outputs are policy relevant.
c. Horizon scanning activities should involve participants in a diverse and inclusive way, and seek to exclude no-one who has knowledge to contribute.

4. Horizon scanning will complement other functions of the SPP.

a. Work undertaken on horizon scanning and capacity building will complement one another. Capacity building will be needed to better identify, monitor, and understand emerging issues, and horizon scanning can help to identify priority areas for capacity building.
b. Horizon scanning will need to be coupled with a strong prioritisation framework in order to transition work on the most impactful emerging issues into the SPPs work programme.

The Royal Society of Chemistry's written statement to OEWG2 on diversity and inclusion in membership of the SPP and the management of conflicts of interest (COI) as it related to Functions (b) Conducting Assessments and (c) Providing up-to-date and relevant information

All individuals acting as scientific advisers in public life should declare their interests to the secretariat and Chairs of any process, and particularly when advice is being formed and presented to policymakers.

Not all interests declared present a '*conflict* of interest' and it will be important to have a '**Conflicts of Interest Committee**' and **an audit process** to assure COI are being managed appropriately for the SPP. Interests should be documented annually as a minimum by all members of the SPP and the UNEP Bureau staff supporting the SPP, and at the beginning of and during every meeting and activity, to ensure for a rigorous and efficient process.

The COI policy and implementation procedures as described for the Intergovernmental Platform on Biodiversity Loss and Ecosystems Services (IPBES) (see documents in the links below) provides a good basis for similar adoption also for a SPP for chemicals, waste and pollution prevention.

https://www.ipbes.net/document-library-catalogue/conflict-interest-policy-and-implementation-procedures

https://files.ipbes.net/ipbes-web-prod-public-files/2021-05/ipbes_8_inf_19_conflict_of_interest_policy.pdf

It may also be useful to develop an accompanying 'Code of Conduct' for the work of the SPP.

If members of the SPP are also members of their professional bodies, there is the added reassurance that the behaviour of individual SPP members complies with their professional body's code of conduct. To illustrate, the Royal Society of Chemistry's member code of conduct statement can be found at:

https://www.rsc.org/globalassets/03-membership-community/join-us/membership-regulations/rsc-code-of-conduct-final.pdf

The United Nations model code of conduct to prevent harassment states:
'*The organizations of the United Nations system are committed to enabling events at which everyone can participate in an inclusive, respectful and safe environment. UN system events are guided by the highest ethical and professional standards, and all participants are expected to behave with integrity and respect towards all participants attending or involved with any UN system event*.'

This general spirit of united cooperation and collaboration would infer that we should consider all scientists from all sectors should be welcomed as individual participants and their personal expertise included in work of the SPP. Interests must be declared according to agreed definitions of interests in scope, by all individuals, transparently for the Conflicts of Interest Committee to review and assure there are no conflicts of interest identified in relation to the topic being discussed. A code of conduct statement could be developed for the SPP, such that all members are bound by it to ensure all members work in a constructive way, bringing their own independent scientific knowledge and experience to support the objective and functions of the SPP. Individual scientists must be representing themselves,

independent of political processes and not representing their organisations/institutions or company lines.

For example, in the United Kingdom, scientific advisers and all public servants adhere to the 'Seven Principles of Public Life' – the 'Nolan Principles' as a very well established code of conduct.

https://www.gov.uk/government/publications/the-7-principles-of-public-life

Selflessness; Integrity; Objectivity; Accountability; Openness; Honesty; Leadership.

These seven principles describing the expectations of how an individual scientific adviser must act in the conduct of their work in public life are regarded as extremely important. Breaches of the 'Nolan Principles' by public servants, including scientific advisers, or breaches of a professional body's code of conduct, are dealt with seriously and act as the mechanism for removing individuals from panels and committees, when undue influence on decision-making is evidenced for pursuing personal or commercial gain. Such behaviour is not to be tolerated when individual scientific advisers are acting in a public capacity.

For the purposes of nominating individuals who could contribute to the SPP in the future, the RSC believes that governments, UNEP accredited major group stakeholder organisations, observer organisations and expert institutions are all in a good position to connect to knowledgeable and experienced scientists, nationally and globally and therefore all of these should be able to make nominations into the selection of experts for the SPP (as is similar for IPCC and IPBES – see UNEP/SPP-CWP/OEWG.2/INF/7).

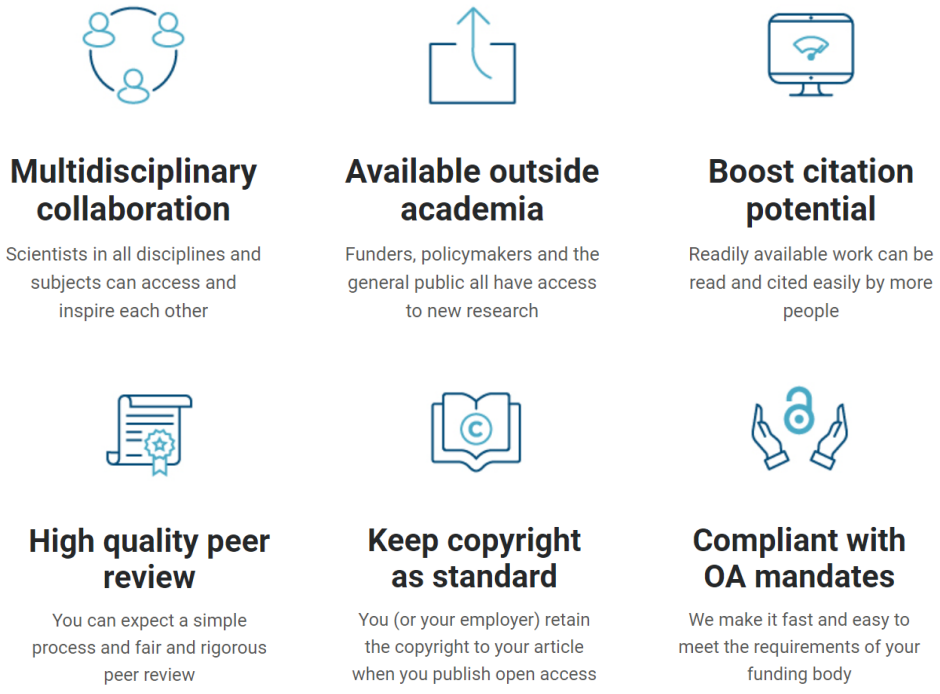
The Royal Society of Chemistry's written statement to OEWG2 on Facilitating Information-sharing

The RSC is committed to an Open Access policy in relation to its publishing activities. Details can be found at https://www.rsc.org/journals-books-databases/open-access-publishing/ . Some general points on this approach to science publishing are provided below:

A world that works for everyone

It's our mission to help you make the world a better place. Open access is crucial to achieving this. We believe that it is the key to building a fairer, more equitable society. One where everyone can access and benefit from discoveries – including researchers, funders, policymakers, and the general public.

What are the benefits of open access?



Our vision for open access

This is just the beginning. Open access can lead us to a fairer society by making impactful research available to everyone. No matter who you are or where you live, you deserve to access and benefit from new discoveries. And we partner with the best people to make this a reality:

The Royal Society of Chemistry's written statement to OEWG2 on the Function of Capacity Building

The addition of capacity building to the list of functions of the new SPP was agreed at OEWG 1.2 (UNEP/SPP-CWP/OEWG.1/7, annex II), but further discussions are needed to finalise the text. Two texts have been proposed for consideration at OEWG 2:

> (a) Provide capacity-building through all the functions of the panel and facilitate technology transfer, in particular to developing countries, to improve the science-policy interface at appropriate levels, including activities to ensure effective, geographically balanced and gender-responsive participation of scientists in the assessments of the panel, strengthen data generation capacity, enhance knowledge and skills that will support country infrastructure and human capacity, and facilitate connection and matchmaking of capacity-related needs and potential solutions;
>
> (b) To build capacity to support the functions and work of the panel in order to strengthen the science-policy interface for sound management of chemicals and waste and to prevent pollution.

The Royal Society of Chemistry (RSC) engaged with the international scientific community on the topic of capacity building, to make the following suggestions in operationalizing this function.

Capacity building, and scientific capacity building, in the context of the UN

Capacity building is embedded as an important aspect of many UN programmes, including those related to the areas of chemicals, waste, and pollution.

1. *UN Sustainable Development Goals*

According to the UN SDG 17: Partnerships for the Goals, '*The Sustainable Development Goals can only be realized with a strong commitment to global partnership and cooperation to ensure no one is left behind in our journey to development. We will need to mobilize both existing and additional resources— technology development, financial resources,* ***capacity building****— and developed countries will need to fulfil their official development assistance commitments*.'[1]

Several targets of Goal 17 are relevant here:[2]

> 17.6 Enhance North-South, South-South and triangular regional and international cooperation on and access to science, technology and innovation and enhance knowledge sharing on mutually agreed terms.
>
> 17.8 Fully operationalize the technology bank and science, technology, and innovation **capacity-building** mechanism for least developed countries by 2017.
>
> 17.9 Enhance international support for implementing effective and targeted **capacity-building** in developing countries to support national plans to implement all the sustainable development goals, including through North-South, South-South and triangular cooperation.

[1] https://sdgs.un.org/goals/goal17

[2] For conciseness, only the most relevant sections of text were included.

2. Global Framework on Chemicals

The Global Framework on Chemicals (GFC), adopted in September 2023 at the International Conference on Chemicals Management 5 in Bonn, Germany, specifically cites the new SPP as an important partner in achieving international goals to manage chemicals and waste. The Bonn Declaration[3], which was ratified alongside the GFC, states:

> *13. We will engage in the international efforts currently under way to establish a science-policy panel to contribute further to the sound management of chemicals and waste and to prevent pollution.*

UNEA Resolution 5/8 also pledges that the new panel will coordinate with and support other relevant bodies. The new Global Framework on Chemicals, as the agreed international framework on the sound management of chemicals and waste, will thus be a key stakeholder of the new SPP. Therefore, it is important to consider the goals and targets of this new instrument.

Capacity building features prominently in both the Bonn Declaration and the GFC (to note, the final text of the agreement has not yet been released). The Bonn Declaration States:

> *11. We are committed to strengthening **capacity building**, technology transfer on mutually agreed terms, and financial support, including from domestic sources, regional and international development cooperation and assistance, as well as from the private sector and philanthropy.*

These documents are a sample of UN agreements which establish a precedent for the inclusion of capacity building. The GFC is especially relevant, both because of its subject and its mandate for ***scientific capacity building***, **which the new SPP will be particularly well placed to support**.

The RSC therefore supports the inclusion of capacity building as a principal function of the new SPP.

To understand what ***scientific capacity building*** means to the scientific community, the RSC engaged with our member networks to discuss this issue with professionals in the field. Most importantly, two focus groups were held with members of the *RSC SPP Engagement Group*, comprised of RSC member scientists and scientists nominated by chemical societies around the world. These consultations provided insights and examples of capacity building in the scientific community.

Defining scientific capacity building

The UN defines capacity building as '*the process of developing and strengthening the skills, instincts, abilities, processes and resources that organizations and communities need to survive, adapt, and thrive in a fast-changing world*.'[4] Capacity building can apply to a variety of sectors and subjects. The focus of this paper, however, is on scientific capacity building. There is currently no single recognised definition for scientific capacity building, but some organisations have begun to develop this concept.

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[3] https://staging.saicm.org/events/iccm5

[4] https://www.un.org/en/academic-impact/capacity-building#:~:text=Capacity%2Dbuilding%20is%20defined%20as,in%20a%20fast%2Dchanging%20world

The UK Department for International Development (DFID) defines capacity building in the context of research as '*enhancing the abilities of individuals, organisations and systems to undertake and disseminate high quality research efficiently and effectively*.'[5]
The levels of engagement are further defined as:

> *Individual:* involving the development of researchers and teams via training and scholarships, to design and undertake research, write up and publish research findings, influence policy makers, etc.
> *Organisational:* developing the capacity of research departments in universities, think-tanks and so on, to fund, manage and sustain themselves.
> *Institutional:* changing, over time, the 'rules of the game' and addressing the incentive structures, the political and the regulatory context and the resource base in which research is undertaken and used by policy makers

UNESCO also provides guidance on building capacity in science and engineering, noting its importance in addressing critical issues of sustainable development. UNESCO writes:

> *Countries need to have the scientific, technological and engineering capacity to provide solutions to the sustainable development challenges they face in areas such as health, agriculture, communication, energy and industrial and infrastructure development. They must not only invest in good national science policies and governance systems but also in building capacity to carry out scientific research which means excellent science education at all levels, effective engineering education and quality universities and research centres. Scientific capacity and know-how whether resulting from local and national research or imported through technology transfer is critical in being able to develop and choose appropriate solutions to today's multiple sustainable development challenges*.[6]

To further investigate the idea of scientific capacity building, the RSC engaged with the international scientific community to learn what scientific capacity building means to those involved.[7]
We identified 4 themes that should be considered when designing a science capacity building strategy for the new SPP:

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[5] https://assets.publishing.service.gov.uk/media/5a749d72ed915d0e8e399a26/HTN_Capacity_Building_Final_21_06_10.pdf

[6] https://en.unesco.org/themes/building-capacity-science-and-engineering

[7] Ensuring that capacity building programmes are driven by the needs of the recipients is a key element of good practice in international development. For example, the European Parliamentary Research Service briefing on capacity building states this concept as a main feature of capacity building frameworks: 'Stakeholders in developing countries have to decide on the needs and targets of capacity development; furthermore, they have to design the processes of change and assume leadership for them. According to the UNDP, an essential component of capacity development is 'transformation that is generated and sustained over time from within'. The UNDP provides similar guidance: The step of engaging stakeholders sits at the beginning of the capacity development process for a very definite reason. It is imperative that all relevant actors are consulted and their support and buy-in secured, thereby making the process self-sustaining and internally driven

1. **Training and upskilling scientists is of critical importance.**
    a. There is a skills gap in many countries. Training and retaining scientists is key.
    b. Secondments, where scientists work abroad in order to learn and share best practices, could help to facilitate training and knowledge sharing.
    c. Scientists need training on specialised equipment; the provision of equipment alone isn't enough.
    d. It is vital to train practitioners on how to appropriately manage and dispose of chemicals in the lab.
2. **Scientists need access to international scientific networks.**
    a. Many countries are facing a scientific diaspora, where highly qualified scientists move from country to country to gain experience and skills development.
    b. Scientific networks can help to facilitate knowledge sharing, exchange of best practices, and access to data.
3. **Capacity building should promote international harmonisation of data and methods – a common toolkit for good scientific practice.**
    a. Access to data on chemicals is key to making sound chemicals management decisions. For example, life cycle assessments require robust data on sourcing/manufacture, use, waste disposal and recycling schemes, to be reliable. Whilst some data is proprietary, even generic data can be useful.
    b. Standardised methods are ideal, but capacity building efforts may also need to adapt to local circumstances and resource constraints.
4. **Capacity building programmes will require funding but support in-kind is also likely to be important.**
    a. Sources of funding could include donations from member states, charities and foundations, or international scientific organisations. There may also be a role for industry, by adopting a polluter-pays principle, assuming appropriate oversight to minimise conflicts of interest.
    b. Considered administration of funding will be needed to provide oversight, ensure value for money, and minimise conflicts of interest.
    c. Support in-kind is also useful, such as access to lab space (whether in a centralised location or via a distributed network of sites).

Capacity building at the science-policy interface

It is also important to consider capacity building at the science-policy interface. For example, IPBES, which is often cited as a potential model for the new SPP, has a capacity building function that focuses on improving scientific practice across the globe. While these efforts have strengthened the scientific aspects of IPBES, it has 'neglected to build capacities on the policy side of the interface, resulting in science and policy to develop separate parallel practices within the IPBES instead of developing enhanced and strengthened interactions and collaborations between the two in the field of biodiversity and ecosystem services.' Going forward, it has been suggested that IPBES should focus on more on 'the political capacities in civil society to use these assessments and on supporting policy processes to

reflect on the implications of assessments and the translation of findings into locally appropriate options and measures.'[8]

RSC focus groups also identified the need to improve scientists' ability to inform government.

1. Scientists need training on how to engage with politicians and the policy process, including knowledge of what data is useful and how to better communicate evidence.
2. Governments should provide formal structures for scientific involvement in the policy process, such as departmental science advisory committees that can gather and evaluate technical evidence.
3. There is also a need to strengthen networks across scientific disciplines and across other disciplines such as the social sciences.
4. It is crucial that all qualified scientists have access to the new SPP and are facilitated to participate, either by providing funding or having a process to enable due recognition in national research evaluation frameworks. Voluntary participation, as in other SPPs, may not be a sustainable model for ensuring adequate representation and opportunities for involvement from the most knowledgeable scientists.
5. The scientific community also respects the knowledge that indigenous populations can bring to the SPP, through observational and experiential learnings.
6. In the highly regulatory areas of chemicals, waste and pollution, scientists who advise governments should also develop capacity of knowledge regarding the regulatory frameworks.

[8] https://www.sciencedirect.com/science/article/pii/S2589811620300094

The Royal Society of Chemistry's written statement to OEWG2 on Operating Principles

In June 2023, the RSC submitted a response to the UNEP consultation on 'Operating Principles' for the SPP. The full submission can be found on the RSC website at:

https://www.rsc.org/globalassets/07-news-events/rsc-news/opinions/2023/09-september/rsc-policy-position-operating-principles-with-sign-on-v1.0.pdf

and on the OEWG website at:

https://wedocs.unep.org/bitstream/handle/20.500.11822/42878/RSC_Submission_spp.pdf

In responding to this consultation, the RSC has taken the view that anything that is an 'Operating Principle' of the panel would stand the test of time and would be unlikely to change over the long term; anything that is a 'Rule of Procedure' may change and be subject to review every 2-3 years, and anything that is 'Guidelines' would allow frequent review and flexibility to the accommodation of new ideas, innovation in science, and policy evolution.

Operating Principle	Rule of Procedure	Guidelines
• Integrity • Independence (from political processes) • Objectivity/impartiality • Policy relevant (but not policy prescriptive) • Inclusivity/balance • Transparency • Flexibility	• Declaring Interests and determining conflicts of interest • Rigour and robustness • Interdisciplinatiry/multi-disciplinarity • Comprehensive, holistic, and integrative approaches • Provision of accessible outputs	• Co-ordination, complementarity and cost-effectiveness • Promotion of innovation
To be determined: Consensus-based approach		

All aspects in the table above were considered important to the process. This consultation led the RSC to propose 7 'operating principles'. Discussion was not conclusive on inclusion of 'consensus' having a definition of unanimity or majority. Therefore, further thought on the topic of whether the SPP would adopt a 'consensus-based approach' is needed. Science rarely concludes with a certain and unanimous outcome by the very nature of scientific method, but often involves uncertainty and weight of evidence. It may be necessary to report a majority opinion with a capture of a minority opinion, as is the case with other worldwide authoritative bodies, when it comes to the provision of scientific advice.

Other useful information

Royal Society of Chemistry Burlington Consensus events 2022 and science-policy work on chemicals, waste and pollution prevention to date

https://www.rsc.org/policy-evidence-campaigns/chemical-waste-and-pollution/#SPP

Peer review journal article – 'An actionable definition and criteria for "sustainable chemistry" based on literature review and a global multisectoral stakeholder working group'
Cannon et al. (2023) RSC Sustainability, **1**, 2092-2106 **– Open access publication**
https://pubs.rsc.org/en/content/articlelanding/2023/su/d3su00217a

RSC Chemicals Strategy for a Sustainable Chemicals Revolution

https://www.rsc.org/globalassets/22-new-perspectives/sustainability/rsc-chemicals-strategy-policy-2020.pdf

RSC Principles for the Management of Chemicals in the Environment

https://www.rsc.org/globalassets/04-campaigning-outreach/tackling-the-worlds-challenges/environment/rsc_principles_for_chemicals_in_the_environment.pdf

RSC Workshop report: When the science is uncertain, what is the role of risk-based approaches and precautionary control in chemicals policy?

https://www.rsc.org/globalassets/22-new-perspectives/sustainability/a-chemicals-strategy-for-a-sustainable-chemicals-revolution/rsc-risk-workshop-report.pdf

RSC Missing Elements: Racial and ethnic inequalities in the chemical sciences

https://www.rsc.org/policy-evidence-campaigns/inclusion-diversity/surveys-reports-campaigns/racial-and-ethnic-inequalities-in-the-chemical-sciences/

RSC A Vision for Science Culture

https://www.rsc.org/policy-evidence-campaigns/inclusion-diversity/surveys-reports-campaigns/a-vision-for-science-culture/

