Holyrood Election Manifesto Briefing

Royal Society of Chemistry – April 2021

Throughout the pandemic we have all looked to science to provide the answers, and science has delivered time and time again. It has shown the importance of investing in science education, infrastructure and innovation to create a resilient Scotland. The chemical sciences can be found at the forefront of delivering the Covid recovery, from working on vaccines and testing, to innovating new technologies and leading the charge on sustainability.

We need you to be a science champion at Holyrood. You can help do this by supporting the chemical sciences and delivering on these key areas:

Funding great science

- **Delivering 2.4%**: The Scottish Government should work with the UK Government to meet the target of increasing research investment to 2.4% GDP in R&D by 2027. Scotland has a good R&D story to tell and a future government will need to continue to be ambitious in order to remain competitive on the global stage and realise the benefits of the nation's research and innovation strengths, particularly in light of challenges faced in higher education institutions following the UKs EU Exit. MSPs need to champion Scotland's R&D sector.
- **Support the Scottish Research and Innovation system**: Science and innovation has been at the heart of the UK's response to Covid-19. Scottish Govt should ensure that R&I investment in Scotland is embedded in planning for recovery to support the economy and the response to continuing and future emergencies.

Supporting our skilled workforce

- **Place is important:** Chemistry using professionals play a significant role in key Scottish industries, many of which will need to make significant technological and skills changes to meet the needs of a green economy. The Scottish Govt must support the transformation of these jobs and sectors. It should also work with counterparts to ensure the monitoring required to inform a place-based understanding of sector capacity and skills is embedded to deliver place based strategies to support green growth in Scotland.

- **Chemistry knowledge and skills retention:** Chemistry knowledge impacts the generation of an average of £83bn annually for the UK economy. Scottish Govt should prioritise knowledge and skills retention in the Scottish economy to support its investments to improve and maintain its internationally competitive research and innovation system.

Protecting our environment and preventing future waste

The chemical sciences play an important role in preventing and remediating the adverse impacts of human activity, including global climate change, and tackling waste from plastics and consumer electronics. Building on evidence from our expert community, we would recommend measures to:

- **Extend producer responsibility for the circularity of products**: Ecodesign should be made part of product requirements, ensuring products and components are durable, repairable and reusable. Products need to be effectively labelled to ease recycling and their environmental impact assessed based on their entire lifecycle. Manufacturers should be responsible for their products when they reach the end of their life, moving some of the burden for recycling infrastructure from taxpayers to producers.

Contact: Niall Sommerville, Public Affairs Manager, sommervillen@rsc.org

- **Incentivise 'reduce and re-use':** Strategies to tackle waste should follow the 'waste hierarchy', with measures that focus on reducing and re-using before discarding and eventually recycling. The next Government should work with industry to introduce convenient product take-back schemes for waste electronics that guarantee secure data wiping, as well as a deposit return schemes for plastics.

- **Invest in R&I that ensures we can recycle our waste:** If everyone started recycling their household electronics today, there isn't the available large-scale infrastructure to extract the rare elements. A future government should work in partnership with academia, industry and consumers to explore scientific solutions. Alongside this, investment must be made available to research the chemistry of materials to develop more sustainable plastics, and to find large-scale methods of recycling materials and recovering rare elements.

- **All sectors of the economy need to take action to reach 'net zero'**, including the so-called "hard to abate" sectors of metals manufacturing, minerals and chemical processing that operate in Scotland. Interventions which incentivise scientific advances, support the workforce to innovate and delivers clean business operations are essential to delivering a productive economy, sustainable society and growing back greener.

- **Lead the way on chemicals and waste**: A strong science-policy interface should be at the heart of any chemicals strategy, in the UK, EU or globally. At the RSC, we are leading the campaign for the establishment of a new UN intergovernmental panel for chemicals and waste that is on a par with the existing UN panels for climate change and biodiversity loss. This is a gap in current global chemicals policy according to the UN 'Making peace with Nature' report. There is growing momentum from the scientific community in support of a new intergovernmental panel. The Scottish Government should take the lead in advocating for this panel and challenging the UK Government to support it.

A brilliant science education

Support practical skills and inclusion in chemistry learning in covid recovery. Impacts of Covid-19 on young people's learning is well-documented, as are the disproportionate impacts on learners from disadvantaged backgrounds. Aside from the wider issues, two prominent concerns arise in regard to chemistry learning: the difficulties in maintaining development of essential practical skills; and the prospect of increasing attainment gaps, adding to existing barriers to progression in chemistry and a reduction in inclusion.

In developing the long-term strategy, the needs of practical subjects must be explicitly taken into account, and measures must ensure that learners have the potential to progress in chemistry are regardless of the disruption they have experienced. We support pragmatic approaches to temporarily adapting curriculum to focus on the concepts and skills most central to the study of chemistry, to make best use of available time and support progression.

Support new teachers who have had their training interrupted by Covid-19: School placements are an integral part of the initial teacher training experience and provide context to put theory into practice. For practical subjects like chemistry they have the added role of helping trainees learn how to safely and effectively teach using practical work. Covid-19 has meant that opportunities for in-school training placements have been greatly reduced this academic year. In addition, even when trainees have been in school, social distancing requirements have meant that there have been fewer opportunities for them to lead whole-class practical activities. A future government should ensure that additional support is made available to new teachers of chemistry who have missed out on development opportunities during their training. This is particularly applicable to skills needed to teach practical chemistry.

Investigate and address the prevalence of multi-course teaching. A recent survey among chemistry teachers in Scotland highlighted the practice of multi-course teaching: 66% of N5 Chemistry classes and 24% of Higher chemistry classes also included students on another course. Multi-course teaching increases teachers' workload and causes significant challenges, with teachers reporting difficulties maintaining effective learning as there is no overlap in the course content. The scale and negative impact of the practice must be recognised, and the causes investigated and addressed.

Contact: Niall Sommerville, Public Affairs Manager, sommervillen@rsc.org