Science and Politics: An Election 2015 Special

- The Conservatives promise to train an extra 17,500 maths and physics teachers over the next five years, but aren’t they forgetting about biology and chemistry?
- The Green Party are ‘pro-science’, but are calling for an immediate end to all experiments using genetically modified (GM) organisms (GMO)- where will this leave the current and future disease models?
- The Labour Party would introduce a new long-term funding policy framework for science and innovation, however, being their manifesto doesn’t mention ‘agriculture’ or ‘farming’ - what would become of GM foodstuffs research under a Labour government?
- ‘Britain will be the place to be if you want to thrive in science’, say the Liberal Democrats. But is their environmental science policy to only allow Ultra-Low Emission vehicles to use UK roads by 2040 over-ambitious?
- Plaid Cymru are calling to make Wales, the UK and the EU a GMO-free zone - will this affect our food, or will it extend to biological research?
- Innovation Centres in Scotland have been set up by the SNP to foster research, innovation and commercialisation, but their manifesto only mentions ‘science’ on one occasion. How do they plan to keep the pipeline of future scientists flowing?
- UKIP want to rejuvenate and expand the UK coal industry and coal-fired power stations. What will this mean for air pollution and the Climate Change Act?

With election fever heating up all over the UK ahead of the General Election on May 7th 2015, the main political parties have all finally published their election manifestos after pushing back the original publication dates as close to the election date as possible.

So, what does this mean for the future of science in the UK after May 7th? I have downloaded and read all of the manifestos from each of the main parties (it’s okay, you can thank me later!) and in this article, I’ll present the points covering science policies from each manifesto in an unbiased and factual way. The main UK parties include: The Conservative Party, The Green Party, The Labour Party, The Liberal Democrats, Plaid Cymru, The Scottish National Party (SNP) and The UK Independence Party (UKIP).

As an aside before we look at each of the manifestos, it was interesting to note how many times the word ‘science’ appears in each policy document;

- The Conservative Party: 16 times
- The Green Party: 10 times
- The Liberal Democrats: seven times
- UKIP: five times
- Plaid Cymru: five times
- The Labour Party: three times
- SNP: once
For scientists currently working in the UK (and especially for those working in public sector institutes such as the Medical Research Council), the continuation of research funding is one of the most important factors to consider. In addition, we need to teach and encourage young and prospective scientists, therefore the promotion of science in schools and institutes is needed to ensure that the pipeline of researchers is kept open and flowing. Let’s take a look at each of the party manifestos in turn and examine how they value the current and future state of science in the UK.

The Conservative Party Manifesto
This manifesto mentions the word ‘science’ more times compared to the other parties. But, how does this translate to real policy?

In this document, the Conservatives are pledging to build a ‘Northern Powerhouse’, although, in this case, ‘Northern’ relates to the North of England and not North of the Border. They plan to build and create new institutions including Health North; The Royce Institute for Advanced Materials in Manchester, Leeds, Liverpool and Sheffield; The National Centre for Ageing Science and Innovation in Newcastle and The Cognitive Computing Centre at Daresbury.

In the English Midlands, the Conservatives are pledging to upgrade the transport infrastructure by investing £5.2 billion into upgrades for the M1 and M6. With improved transport links, they are hoping to back the Midlands’ strength in advanced science and technology with projects such as the Energy Research Accelerator (ERA).

What is the ERA? Well, this is a partnership between six leading UK Universities - the Universities of Birmingham, Nottingham and Warwick, Loughborough, Aston and Leicester, as well as the British Geological Survey (BGS). The current UK coalition government has already pledged £60 million to help fund this centre which will examine new ways to reduce energy costs for manufacturing as well as research into energy storage systems, low carbon solutions and thermal energy.

The Conservatives are pledging to invest £6.9 billion in the UK research infrastructure from the election up to 2021. This includes £2.9 billion for the ‘Grand Challenges Fund’. This Fund “will allow us to invest in major research facilities of national significance, such as the new Alan Turing Institute, and projects such as the Polar Research Ship and Square Kilometer Array.” The ‘Square Kilometer Array’ is a project to build the world’s largest radio telescope, co-sited in the deserts of South Africa and Australia, with the organisation headquarters being based at Jodrell Bank Observatory, near Manchester. They pledge to continue to support Life Sciences (although no details are included in the manifesto) and to create more R&D hubs in the UK in ‘technologies of the future’, although there is no details as to how, where or when.

In translating research to agriculture, the Conservatives are pledging to support a science-led approach on GM crops and pesticides, as well as implementing a 25 year strategy to eradicate bovine TB.

In terms of teaching of science in the UK, the Conservatives admit that schools have fallen behind in global league tables for maths and science. Their solution to this problem is to include “tough new standards for literacy and numeracy in primary schools”. In secondary
schools, pupils will be required to take subjects including maths and science. The manifesto pledges to make the UK the best place in the world to study maths and science by promising to train an extra 17,500 maths and physics teachers over the next five years (but no mention is made of biology or chemistry).

The National Health Service (NHS) is a favoured political football for all political parties in the UK and is one of the most important vote-deciding issues with the general public. In a poll published on 23rd March 2015, 55% of undecided voters rated the NHS and healthcare as the most important issue when deciding on whom to vote for 3. In terms of translational science and medicine, the Conservatives are pledging to speed up access to new medicines by implementing the findings of the ‘Innovative Medicines and Medical Technology Review’. New drugs can take up to 10 years to develop and the R&D costs can be as much as £1 billion. This new review aims to accelerate this time scale and tackle regulatory obstacles 4. A major drug-related problem is that of antibiotic resistance and the Conservatives are pledging to “continue to lead the global fight against it”. In addition, they are planning to ‘foster’ research, innovation and jobs in the life science industry. This is to include the decoding of 100,000 genomes involved in cancer and rare diseases.

The Green Party Manifesto

“Greens are pro-science.” This is the opening statement to the ‘Science and Technology’ section of the Green Party manifesto. However, they also state that just because science allows us to do something, we should not necessarily do it.

The manifesto policies of the Green Party are (unsurprisingly) levelled towards sustainable and alternative energy research. They pledge that ‘adequate government funding’ goes towards issues such as climate change, biodiversity loss and pollution, although no figures are quoted as to the amount of funding. However, the Green Party would increase public spending on scientific research from 0.5 % to 1.0 % GDP over the next 10 years. All of the results from such public funded research would be published freely under the Green Party.

The manifesto also pledges to prevent the patenting of genes and living organisms, although it doesn’t state whether this will affect all such current patents.

Similar to the ERA project mentioned above, the Green Party are pledging £4.5 billion over the course of the next parliament to support research and development of less energy-intensive industrial processes.

In opposition to the pledges of the Conservative Party manifesto, the Green Party would support a moratorium on the use of GM organisms in all of agriculture including production of human food. Instead, they would foster environmentally-sustainable agriculture by supporting reliable research into all types of farming including organic farming. In tackling bovine TB, the Green Party would call for an immediate end to the controversial badger cull and ensure that the eradication of this disease was based on the best scientific evidence available.

Some of the main scientific research issues in this manifesto are those relating to the use of animals in experiments. The Green Party have set out in this manifesto to call for an end to all animal experiments. Included in this, they would take immediate action to halt the use of all ‘genetically altered’ animals. How this would impact on all of the current research using disease models and transgenic animals remains to be seen, but the manifesto does not stipulate how the Green Party would implement immediate alternatives to these models.
Nevertheless, it is stated that greater funding would be provided for non-animal research, although no figures or timescale are given. The manifesto also pledges that all animal-based research findings (including negative results) should be published to increase transparency.

In the education section of the Green Party manifesto, there is no mention of ‘science’ as such, but they pledge to abolish the league tables and decrease class sizes to a maximum of 20 pupils. In higher education, the Green Party would like to see a move away from the Research Excellence Framework and instead, put more emphasis on lecturers actually teaching as opposed to meeting research goals. In addition, they would scrap undergraduate tuition fees and cancel all student debt (with a long term goal to also scrap fees for postgraduate study). In place of this, they would reintroduce the student grant system and reintroduce block grants to universities.

In terms of the NHS, the Green Party manifesto doesn’t mention translational research or pharmaceutical research and implementation. However, in terms of science, they state that they would tackle air pollution which causes an estimated 29,000 premature deaths in the UK.

The Liberal Democrat Manifesto
Under the Liberal Democrats, Britain will be the place to be if you want to thrive in science—at least, that’s what their manifesto proclaims.

The Liberal Democrats aim to double research and innovation spending in the next parliament and continue to ring fence the science budget. They also want to increase the number of so-called ‘Catapult’ innovation and technology centres across the UK. There are already seven of these centres in the UK. From a science perspective, the main one of interest is the Cell Therapy Catapult based at Guys Hospital in London. This centre is working towards becoming a world leader in developing, delivering and commercialising cell therapy treatments. In 2017, the Cell Therapy Catapult is also aiming to open a Cell Therapy Manufacturing Centre which will provide facilities for later-stage clinical trials as well as commercialisation. In addition to the existing centres, two more are planned, including a ‘Precision Medicine Catapult’ which was just launched this month. In the coming year, this new centre aims to tackle industry bottlenecks around test development, clinical trial networks and healthcare delivery.

In the area of so-called ‘green jobs and investment’, the Liberal Democrat manifesto pledges to increase research, development and commercialisation in areas such as tidal power, carbon capture and storage, energy storage and ultra-low emission vehicles (although no budget or timescale is given for any of these).

In terms of education, this manifesto sets out to make sure that the UK is an attractive destination for overseas students, especially those wishing to study in the STEM subjects (Science, Technology, Engineering and Mathematics). They will also set out to increase work experience placements for young people in the areas of science and technology. At school level, the Liberal Democrats recognise the need to encourage more pupils to study STEM subjects. They plan to do this by making sure that primary schools have at least one science specialist amongst their staff, although this could be any of the sciences. In secondary schools, they would like to maximise the number of teachers who have degree level qualifications in the subject they teach, but this doesn’t necessarily mean STEM subjects.
Although the Liberal Democrats manifesto doesn’t mention GM organisms in relation to food and farming, it does state that farming support will be concentrated on sustainable food production. In terms of bovine TB (which seems to feature in most of the manifestos), the Liberal Democrats would introduce science-led strategies to tackle the problem and only support culls if they are deemed to be effective.

In the section on health and the NHS, the Liberal Democrat manifesto states that “it is also vital we invest in research to develop new treatments and find new ways of delivering innovative treatments in affordable ways.” The manifesto also mentions that they would move towards ensuring that all clinical trials are registered and that the methods and summaries are made publically available.

The Liberal Democrats pledge to tackle air pollution by passing a ‘Green Transport Act’ which would include a ‘National Air Quality Plan’ to improve air quality by 2020 (although the manifesto doesn’t state if this would be a measure of particulate air pollution which is the main cause of premature deaths, as stated above). By 2040, the Liberal Democrats would only allow Ultra-Low Emission vehicles to use UK roads for non-freight purposes.

The UKIP Manifesto

In primary school education, UKIP have pledged to that every primary school has a ‘science leader’ to inspire the next generation which is part of the recommendations of the Campaign for Science and Engineering 9. UKIP hopes that this role will address the gender imbalance in STEM subjects, although they don’t state how this will be achieved. For UK students studying STEM subjects at degree level, UKIP would ensure that they do not need to repay their tuition fees provided they work in their discipline and pay tax in the UK for five years after completing their degree. However, this only applies to universities funded by the Higher Education Funding Council for England, so would exclude Welsh and Scottish Universities.

Under a UKIP government, the UK would leave the European Union and they would not give tuition fee loans to students wishing to study in the UK from the European Economic Area.

In terms of GM foods, UKIP would support research into the benefits and risks to the public as well as allowing a free vote in parliament on the commercial cultivation. Unlike the other manifestos above, UKIP makes no mention on how to tackle the problem of bovine TB.

In the controversial issue of animal testing, UKIP have pledged to keep the ban on animal testing for cosmetics (which is highly unlikely to be overturned anyway), in addition they would “challenge companies using animals for testing drugs or other medical treatments on the necessity for this form of testing, as opposed to the use of alternative technology” and would also “tightly regulate animal testing”. It is not stipulated what such a ‘challenge’ would entail or if the tight regulation of testing would mean tougher legislation than that already included in the Animals (Scientific Procedures) Act of 1986.

The UKIP environmental policies fly in the face of all of the other parties, mainly because they view the Climate Change Act (2008) as “EU folly”. Instead, UKIP would seek to expand and rejuvenate the UK coal industry and would seek private funding to develop new coal fired power stations. At the same time, they plan to drop all subsidies for wind and solar power “to ensure a level playing field for coal”. With such policies, there is no mention of the 29,000 premature deaths/year linked to particulate air pollution.
In the section on health and the NHS, UKIP have pledged to invest an extra £130 million/year by 2017 for research and treatment of dementia, but no mention is made of other diseases/conditions. The manifesto goes on to state that “numerous EU Directives prevent medical institutions from operating in the best interests of patients.” Included in the plan is a pledge to scrap the EU Clinical Trial Directive which was set up to establish an EU wide database for all clinical trials conducted in Europe. The UKIP manifesto doesn't state if or how the UK would set up an independent directive/database and how this would interact with other European Economic Area countries or the rest of the world.

The Plaid Cymru Manifesto
Three of the five instances of the word ‘science’ in the Plaid Cymru manifesto related to the Menai Science Park which is based at Bangor University. This institute is currently under development but it is hoped this will encourage knowledge exchange between researchers and business in areas such as Health and Behavioral Sciences, Clean Technologies and Natural Sciences. It has already received £10 million from the Welsh Government, but the manifesto doesn’t state if this institute will continue to receive such funding.

In school education, the Plaid Cymru manifesto doesn’t mention science subjects as such, but they would “ensure that young people develop key skills, including literacy, numeracy, IT skills and thinking skills, and an understanding of climate change and the environment.” In addition, Plaid Cymru believes that higher education should be free for everyone who would like to study at this level. They pledge to provide a subsidy for any student living and studying in Wales (although no figure is given) and those wishing to study the STEM subjects would be exempt from tuition fees. The manifesto states that Welsh universities are currently under-funded. Therefore, Plaid Cymru have pledged to “work with our universities to increase research capacity and funding, particularly ensuring that Welsh universities get a fair share of UK-based research funding and to get the best investment from the European Union’s Horizon 2020 funding. We will use this to enable our universities to work more closely with industry, promoting research and development related to universities, such as at the Menai Science Park that is being developed as a result of our 2012 Budget deal.”

The manifesto pledges to set up a ‘Green Skills College’ to create research, development and manufacturing jobs to ensure that the economy becomes more environmentally friendly.

The manifesto opposes the growth of Genetically Modified Organisms (GMO) in Wales and support a call to make the UK and EU a GMO-free zone. However these statements are in the manifesto section on Food and Agriculture, so it is not clear if these pledges would relate only to GM food stuffs, or if it would be expanded to GM research models. As with the UKIP manifesto above, there is no mention of the problem of bovine TB.

In the section on healthcare and the NHS, Plaid Cymru have said they will support the All Trials Campaign which is campaigning for all past and present clinical trials to be registered and have the full results and summaries published. Plaid Cymru hope that such publications will enable clinical staff and researchers to have access to the most comprehensive and up-to-date evidence based information. The manifesto also pledges to ensure that Wales receives an increase in the share of health research funding and thereby attracting more researchers to live and work in Wales.
The Labour Party Manifesto
This manifesto only mentions ‘science’ on three occasions. However, the Labour Party pledges to build upon the “outstanding science research base” and the world-class universities in the UK.

One of the ways in which they plan to do this is to set up an independent ‘National Infrastructure Commission’ which will “assess how best to meet Britain’s infrastructure needs. It will make recommendations to government, monitor their implementation, and hold government to account. These measures and our long-term approach will help reinforce Britain’s status as one of the world’s greatest centres of science and engineering.” However, they do not stipulate a budget, timescale or what their ‘long-term approach’ will entail.

Continuing with the theme of improving productivity and new industrial strategy, the manifesto states that the Labour Party would introduce a new long-term funding policy framework for science and innovation to provide stability for companies and research institutes- but again, no details are given as to the time scale or funds which will be available.

In terms of school education, this manifesto makes no mention of the sciences, only stating that the Labour Party will pledge to ensure that all young people will study mathematics up to the age of 18 and guarantee that all teachers in state schools are ‘qualified’. For higher and further education, this manifesto pledges to cut tuition fees from £9000 to £6000 per year, but there is no specific mention of incentives for any of the STEM subjects (more emphasis is placed on apprenticeships in this manifesto).

Unlike the other manifestos, there is no section on farming (nor indeed do the words ‘farming’ or ‘agriculture’ appear anywhere in this manifesto). However, the Labour Party pledges to bring an end to the badger cull, but they do not state how they would tackle bovine TB.

The only mention of air pollution in this manifesto refers to the statement that the Labour Party will deal with air pollution by giving more powers to local authorities, backed up by a national framework, but there is no detail of the ‘powers’, nor the ‘national framework’.

In the section on health and the NHS, the Labour Party manifesto doesn’t make any reference to clinical research. The only science-related pledge is that the Labour Party will create a ‘Cancer Treatments Fund’ to give patients access to the latest cancer drugs.

The SNP Manifesto
Although the SNP manifesto only mentions the word ‘science’ on one occasion, how does this reflect on science-based policy in the rest of the document?

The SNP state that they “recognise and applaud the vital part played by our universities in creating world-leading research, including in areas of cutting-edge science and technology, and boosting both Scotland’s international profile and innovation base. We will continue to work closely with our universities to maintain their position of global excellence.” One of the ways they plan to support research and innovation is through Innovation Centres in Scotland. The Scottish Funding Council has already committed £124 million to these centres. The Hillington Park Innovation Centre near Glasgow has already supported a number of science based companies in fields ranging from stem cell technology to innovative medical products.
The Alba Innovation Centre based in Livingston has supported companies working in areas from next generation colposcopes and cervical scanners to instruments offering new testing methods for early detection of glaucoma.

In the rural and farming sections of the manifesto, there is no mention of how the Scottish Government will tackle bovine TB, but they have pledged to introduce a new rural development programme worth £1.3 billion over the next six years. However, there are no details as to exactly where and how this money will be spent, except that it will “provide crucial support for Scottish farming, food production, rural communities and the environment.” In addition, there is no mention of genetically modified organisms in this manifesto for either food stuffs or research.

In terms of environmental issues, the SNP have stated that they will ensure that the Westminster Government matches and supports Scotland’s commitment to carbon reduction (although no details are given as to what this commitment is). For renewable energy, the SNP aim to see a long-term development of this industry including onshore/offshore wind power and they “want the UK government to remove barriers that are limiting growth in the hydro sector”.

When it comes to education, the Scottish Government scrapped tuition fees and the graduate endowment in 2008 meaning that all Scottish students were eligible for free higher education. The manifesto states that the SNP will keep free university education in Scotland. Although there is no mention of science or the STEM subjects in this manifesto, the SNP-led Scottish Government have already rebuilt or refurbished 526 schools and they pledge to continue this programme. The SNP have also delivered a “unique Scottish Youth Guarantee, with a guaranteed offer of a place in training or education for all 16 to 19 year olds” and will pledge for the rest of the UK to adopt this scheme.

The SNP will campaign for increases in health spending across the UK and hope this will deliver £2 billion for NHS Scotland by 2020/2021. The first allocation of new spending will go to support patients with motor-neuron disease and indeed the SNP are also pledging to “support calls to double research funding across the UK to find a cure for motor-neurone disease, with Scotland well placed to play a central role in taking forward new research in this area.”

It’s up to you
It’s now down to the UK electorate to decide who should govern the country for the next five years. It will be interesting election as the polls are currently indicating no overall winner in our ‘first past the post’ system. Will the winning party (or parties in the event of a coalition government) keep to their election manifesto promises when it comes to science-related policies? Only time will tell!

3. http://www.comres.co.uk/polls/gmb-undecided-voters-poll/
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