**SSAC Minutes Thursday 12 June 2014**

**Room G:09**

**Europa Building**

**Glasgow**

**Attendees:**

Professor Muffy Calder, SSAC Co-Chair

Dr Chris Masters, SSAC Independent Co-Chair

Professor Ian Boyd

Professor Nigel Brown

Professor David Cumming

Mr Stuart Farmer

Professor Jim Hough

Professor Julian Jones

Mrs Angela Mathis

Professor Jon Oberlander (am only)

Professor Jason Reese

Mrs Anna Milne, SSAC Secretariat

Diane Strachan, SSAC Secretariat

Ms Clare Hicks, Head OCSA

 Professor Louise Heathwaite (*ex-officio member*)

 Professor Tony Doyle, University of Glasgow (for item 9 only)

**1. Welcome and Apologies**

1. Professor Calder welcomed SSAC members to the meeting and gave apologies from Professor George Salmond, Professor Marian Scott, Professor Andrew Morris and Professor Ian Diamond.

2. She noted that Dr John Brown had recently resigned from SSAC and thanked him for his significant contribution to SSAC during his period of membership.

3. Professor Calder announced that she would be leaving the Scottish Government and her position as Chief Scientific Adviser for Scotland at the end of December 2014 to take up post as Vice Principal of Science and Engineering at University of Glasgow. She noted that as a result of this change there would be a delay introduced into the SSAC recruitment process to allow the new CSA for Scotland to have input. Members congratulated Professor Calder on her new appointment.

**2. SSAC Dinner Discussion**

4. Dr Masters thanked Professor Boyd for his excellent presentation the previous evening. Professor Boyd had initiated a discussion about the quality of scientific evidence in the policy process. He further highlighted the role of the Chief Scientific Advisers in Government to act as translators of scientific knowledge to Ministers and officials. The theme of Professor Boyd’s presentation and the subsequent discussion focused on the need for better quality evidence for use in the policy process and his approach to improving, defining and assuring quality through the process of commissioning research within Government. The discussion further touched on the topic of scientists as a professionals.

**3. Big Data Update**

5. Professor Calder reported that the SSAC Big Data report continues to have impact. She noted that the Institution for Engineering and Technology (IET) had contacted the SSAC Secretariat following the publication of the SSAC Big Data report. She noted that the IET plan to hold a Holyrood Briefing Session in the Scottish Parliament on Big Data and Data Science in November 2014 and that the SSAC report would be referenced at the event.

6. She noted that the document should be considered an evolving document. Professor Calder reported that Professor Oberlander had also helped in the planning of the forthcoming Scottish Government Data Summit where the SSAC report would be used as a reference document and thanked him for his ongoing involvement in this work.

7. The group discussed a number of issues relating to big data including the increasing amount of satellite data being generated and the group agreed that this was a topic for future discussion. Professor Oberlander suggested that there was an opportunity to give examples of positive applications and best practice on dealing with risk.

8. A member commented that we need to be clever about what data we maintain and curate.

9. Professor Calder thanked members for their input and agreed that this topic would continue to be an issue for SSAC consideration. She noted that there were many big common issues across many scientific disciplines and that SSAC should try to help guide the community in Scotland.

**4. Update on Synthetic Biology Report**

10. Professor Brown presented SSAC members with the latest draft of the SSAC Synthetic Biology report. He explained that since the last SSAC meeting members of the Working Group had met and provided input to the draft report and the most recent version had been circulated to all members for consideration.

11. Professor Brown further noted that since the last meeting he and Professors Calder, and Heathwaite had met with Dr Allan, Minister for Learning, Science and Scotland’s Languages and Mr Wheelhouse, Minister for Environment and Climate Change to discuss the initial outputs of the report. Professor Brown noted that the meeting had been positive and while Ministers were sensitive to the potential environment impact of Synthetic Biology they were also interested to know how it could translate into economic advantage for Scotland.

12. Professor Brown reminded colleagues that this report focused on contained use and the potential economic opportunities for Scotland.

13. Professor Calder opened up the meeting to discussion and comments. Members provided Professor Brown with a number of suggestions for additions and amendments to the report.

14. Members then went on to discuss the launch of the report. It was agreed that the report would be presented to Scottish Government by the end of July and would then be formally launched at an event at the end of September/October.

15. Professor Calder thanked members for their contribution and added her thanks to Professor Joyce Tait from the University of Edinburgh for her contribution to the Working Group.

**5. Update on Unconventional Oil and Gas**

16. Dr Masters updated members on activities of the Scientific Panel on Unconventional Oil and Gas. Dr Masters said he expected that the Panel’s final report would be signed off the following week and published by the end of July 2014.

**6. Minutes of the Last SSAC Meeting on 20 March 2014**

17. The SSAC agreed and approved the minutes of the last SSAC meeting held on 20 March 2014.

***7.* Members Updates**

18. Members updated colleagues on topics of interest from their areas.

**9. CERN Post Higgs Presentation from Professor Tony Doyle**

19. Dr Masters welcomed Professor Tony Doyle, Professor of Physics and research group leader of the Particle Physics Experiment (PPE) group at the University of Glasgow. Professor Calder explained that Professor Doyle was going to present to the group as part of SSAC’s series of presentations on cutting edge science. His presentation would update members on the role of Scottish scientists at CERN post-Higgs.

20. Professor Doyle thanked the SSAC Co-Chairs. He started his presentation highlighting the importance of CERN as the major international centre for particle physics. He noted that CERN currently had 21 member states and that the UK was one of the big four to contribute. He further noted the historic and ongoing leading role that Scottish scientists and Scottish-led research groups play at CERN. Professor Doyle reported that the Large Hadron Collider (LHC) performed beyond expectations in Run 1 and is currently being prepared for Run 2. He further noted that the Higgs particle discovery announced on 4 July 2012 marked a major boost to Scottish science and is the major reason why experiments are being performed in Run 2 of the LHC starting in April 2015.

21. He noted that Scottish physicists are currently members of and have leading roles in two experimental collaborations at CERN, which use the LHC, the ATLAS experiment and the LHCb. Professor Doyle explained Scottish scientists from Edinburgh and Glasgow Universities working at CERN are part of four strong and vibrant groups in Theory and Experiment which form the Particle Physics theme of the Scottish Universities Physics Alliance (SUPA). A total of 31 academics, 31 Research Associates, 7 Research Fellows, 58 Students, 21 Honorary Fellows and 6 Technicians, with a combined grant portfolio of £21.1m and an annual spend of £5.0m constitute these groups.

22. Professor Doyle explained that Scottish scientists are providing major input in Higgs studies involving decays to b-quarks, as well as searches for new particles beyond the Standard Model. He noted that going forward Scottish scientists are looking forward to new results from the LHC and developing technology for the planned upgrades to the ATLAS and LHCb experiments. Further developments in Grid computing and more general technology development in the detector field, relevant to medicine and national security are part of the forward looking plan. He noted that for the LHC results it is clear that we are entering a Golden Age and SUPA members are leading many of the experiment activities translating into highly-anticipated publications.

23. Professor Doyle explained that, in addition to the fundamental research, technological excellence in this area leads to important spin-offs. He highlighted that University of Glasgow is a founding member of the Medipix collaboration which has a Development Agreement with Philips Healthcare to develop spectral x-ray imaging detectors for diagnostic medicine. This technology will usher in the biggest change to x-ray based diagnostic capability since the introduction of Computed Tomography. In addition, this technology is being deployed with success in a wide field of applications from Homeland Security to materials science.

24. Professor Doyle concluded that public interest in particle physics and the LHC has increased significantly in recent years and that the broader cultural benefits underpin their outreach programme. He suggested that media reporting of the activities at CERN have increased awareness and provide a major motivation for students choosing physics at University and he has seen a significant increase in the number of students applying to study physics at university.

25. Dr Masters thanked Professor Doyle for his excellent presentation and opened up the meeting for questions and discussion. SSAC members asked a number of questions and much of the subsequent discussion focussed on the long term returns from blue sky research i.e. how society benefits from these discoveries and the long term public investment in international scale projects.

**10. Work Programme Update - Research Infrastructure**

26. Professor Calder invited Professor Jones to update members on the progress of the Working Group looking at Science Infrastructure and to present his discussion paper.

27. The members of the Working Group chaired by Professor Jones were Professors Cumming, Hough, Scott and Reese. Professor Jones explained that the purpose of this paper was to provide an initial report from the Working Group activities since the last SSAC meeting.He explained that the paper provides an outline summary of the findings of the group with some points for discussion. He proposed that the outputs from this discussion would be used to formulate the recommendations of the final report. He reminded colleagues that one of the purposes of the report is as an input to the BIS consultation on capital investments and research infrastructure[[1]](#footnote-1) issued on 25 April 2014.

28. Professor Jones reported that the Working Group collected its evidence by issuing a questionnaire to relevant stakeholders in Scotland: universities; Research Pools and Innovation Centres; research institutes; and industry associations. Summarised responses from these four groups of organisations were then produced by the Working Group members. Professor Jones then went on to summarise salient points which had emerged from the survey and posed a number of questions for discussion by the wider SSAC.

29. Professor Calder thanked Professor Jones. SSAC members had a wide ranging discussion and SSAC members provided suggestions for the drafting of the final report.

30. Professor Calder thanked members for their input. She asked members to provide any additional thoughts to Professor Jones.

**12. Any Other Business**

31. None.

**13. Date of Next Meeting.**

32. The next SSAC meeting would take place on Thursday 11 September in Edinburgh. The meeting would take place from 10am – 3pm and there would be no dinner the previous evening. Full details will be circulated in due course.

1. Creating the Future: A 2020 Vision for Science & Research - A Consultation on Proposals for Long-Term Capital Investment in Science & Research <https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/307989/bis-14-757-consultation-on-proposals-for-long-term-capital-investment-in-science-and-research.pdf> [↑](#footnote-ref-1)