

**Questionnaire UK COVID-19 Inquiry: Module 2B - Rule 9 Request to Professor Davey Jones-
Reference: M2B/DJ/01**

Please provide the following information:

1. A brief overview of your qualifications, career history, professional expertise and major publications.

Davey Jones holds a Professorial Chair in Soil and Environmental Science at Bangor University and a Professorial Chair position at Murdoch University in Western Australia. Previously, he was a Postdoctoral Research Fellow held jointly between Cornell University and the US Department of Agriculture in the USA (with Prof Leon Kochian). He also carried out postdoctoral work under Prof Simon Gilroy at Penn State University (now Madison, WI). A major focus of his research is on understanding below-ground processes with specific focus on nutrients and human pathogen behavior in water-food-soil-plant-microbial systems. His research portfolio is quite broad - reflecting his interests from natural sciences through to social sciences (i.e. science linked to changing human behaviour).

Current applications of his work include (1) the implementation of strategies for controlling SARS-CoV-2 (COVID-19) and other viral pathogens in urban, agricultural, freshwater and marine ecosystems, (2) promoting carbon sequestration in agricultural systems and understanding the factors regulating carbon cycling and greenhouse gas emissions, (3) developing ways to improve nutrient use efficiency in cropping systems with specific focus on nitrogen and phosphorus, (4) nutrient dynamics in polar (Arctic and Antarctic ecosystems), (5) devising strategies for the effective reuse of wastes for land restoration and remediation (heavy metals and organic pollutants), (6) soil microbial diversity and ecosystem functioning, (7) modelling nutrients dynamics in the plant-soil-microbial and freshwater ecosystems, (8) understanding the barriers to technology adoption by farmers, (9) the flow of endocrine disrupting chemicals in the environment, (10) the impact of flooding, drought and ozone on ecosystem functioning (including tipping points) and potential strategies to enhance ecosystem resilience, and (11) influence of microplastics in soil and freshwater environments.

He has published more than 600 scientific journal articles (ISI H-index = 87; 32,600 citations) and has advised government on their COVID-19, waste, agriculture and climate change policies. His research is mainly funded via UKRI (NERC, EPSRC, BBSRC), Welsh Government, DHSC, UKHSA, Public Health Wales, Food Standards Agency, DEFRA and the European Union. He also collaborates with industry to deliver novel solutions to environmental problems and improve product sustainability. He currently leads the 'wastewater-based public health surveillance programme for Wales'. He also collaborates with industry to deliver novel solutions to environmental problems and improve product sustainability.

2. A list of the groups (i.e. TAG and/or any of its subgroups) in which you have been a participant, and the relevant time periods. Please also confirm if you are or have been a participant in SAGE or other relevant groups.

Welsh Government, Chair of TAG-E (COVID-19 Technical Advisory Group for the Environment) 2020-present.

Welsh Government, member of TAG (COVID-19 Technical Advisory Group) 2020-present.

Member of the SAGE sub-committee 'Transmission of Covid-19 in the Wider Environment Group (TWEG)' 2020-2021.

3. An overview of your involvement with those groups between January 2020 and May 2022, including:

a. When and how you came to be a participant;

We were running the wastewater-based COVID-19 surveillance programme for the UK supporting clinical testing. We also have 12 years of monitoring pathogenic viral behaviour in the environment.

b. The number of meetings you attended, and your contributions to those meetings; and

Attended all TAG meetings where possible. I contributed environment-related papers to the meetings and introduced them to the rest of TAG. I contributed to advice to the committee.

I chaired all the TAG-E meetings which occurred weekly and then moved to monthly as the pandemic progressed. I chaired the meetings and contributed to advice to the committee.

The SAGE-TWEG committee met monthly. I contributed to advice to the committee.

c. Your role in providing research, information and advice.

We wrote a wide range of scientific evidence and advice papers on issues relating to COVID-19 transmission in the environment and non-pharmaceutical based interventions for COVID-19 mitigation. I contributed to writing these papers and reports. We also undertook research to provide evidence to the committee.

4. A summary of any documents to which you contributed for the purpose of advising TAG and/or its related subgroups on the Covid-19 pandemic. Please include links to those documents where publicly available.

TWEG (2020) Environmental monitoring of viral presence, infectivity and transmission of SARS-CoV-2
<https://www.gov.uk/government/publications/tweg-environmental-monitoring-of-viral-presence-infectivity-and-transmission-of-sars-cov-2-3-december-2020>

EMG/SPI-B/TWEG (2020) Mitigations to reduce transmission of the new variant SARS-CoV-2 virus, 22 December 2020
<https://www.gov.uk/government/publications/emgspi-btweg-mitigations-to-reduce-transmission-of-the-new-variant-sars-cov-2-virus-22-december-2020>

TWEG (2020) Evidence of wider environmental transmission of SARS-CoV-2, 12 June 2020
<https://www.gov.uk/government/publications/tweg-evidence-of-wider-environmental-transmission-of-sars-cov-2-12-june-2020>

Technical Advisory Group (2020) swimming pools, hot tubs, saunas and steam rooms and risk from COVID-19. <https://www.gov.wales/technical-advisory-group-swimming-pools-hot-tubs-saunas-and-steam-rooms-and-risk-covid-19>

Technical Advisory Group (2020) SARS-CoV-2 infection risks at ice rinks.
<https://www.gov.wales/technical-advisory-group-sars-cov-2-infection-risks-ice-rinks>

Technical Advisory Group (2020) SARS-CoV-2 infection risks at indoor exercise facilities.
<https://www.gov.wales/technical-advisory-group-sars-cov-2-infection-risks-indoor-exercise-facilities>

Technical Advisory Group (2020) current evidence relating to weddings.
<https://www.gov.wales/technical-advisory-group-current-evidence-relating-weddings>

Technical Advisory Group (2020) air cleaning devices. <https://www.gov.wales/technical-advisory-group-air-cleaning-devices>

Technical Advisory Group (2020) Surveillance approaches to determine the risk, frequency and origin of SARS-CoV-2 entry into UK airports. <https://www.gov.wales/technical-advisory-group-surveillance-approaches-determine-risk-frequency-and-origin-sars-cov-2>

Technical Advisory Group (2021) mitigating risks of increased COVID-19 transmission during elections. <https://www.gov.wales/technical-advisory-group-mitigating-risks-increased-covid-19-transmission-during-elections>

Technical Advisory Group (2021) SARS-CoV-2 transmission risk in public toilets.
<https://www.gov.wales/technical-advisory-group-sars-cov-2-transmission-risk-public-toilets>

Technical Advisory Group (2021) COVID-19 evidence associated with transmission and potential risks associated with religious activities and places of worship. <https://www.gov.wales/technical-advisory-group-covid-19-evidence-associated-transmission-and-potential-risks-associated>

Technical Advisory Group (2021) review advice on communal singing and chanting, including wind instruments and pipe organs. <https://www.gov.wales/technical-advisory-group-review-advice-communal-singing-and-chanting-including-wind-instruments-and>

Technical Advisory Group (2021) plastic screens in taxis and private hire vehicles.
<https://www.gov.wales/technical-advisory-group-plastic-screens-taxis-and-private-hire-vehicles>

Technical Advisory Group (2021) use of face coverings in childcare and educational settings for Under 18s. <https://www.gov.wales/technical-advisory-group-use-face-coverings-childcare-and-educational-settings-under-18s>

Technical Advisory Group (2021) advice for nightclubs and adult entertainment venues.
<https://www.gov.wales/technical-advisory-group-advice-nightclubs-and-adult-entertainment-venues>

Technical Advisory Group (2021) evidence review of ozone generators including appropriateness as mitigation in classrooms. <https://www.gov.wales/technical-advisory-group-evidence-review-ozone-generators-including-appropriateness-mitigation>

Technical Advisory Group (2022) reducing COVID-19 transmission in schools and colleges: the role of air cleaning devices amongst other mitigations. <https://www.gov.wales/technical-advisory-group-reducing-covid-19-transmission-schools-and-colleges-role-air-cleaning>

Technical Advisory Group (2022) Consensus statement on face masks for the public.
<https://www.gov.wales/technical-advisory-group-consensus-statement-face-masks-public>

Technical Advisory Group (2022) Wastewater monitoring: 19 May 2022.
<https://www.gov.wales/wastewater-monitoring-19-may-2022>

5. A summary of any articles you have written, interviews and/or evidence you have given regarding the work of the above-mentioned groups and/or the Welsh Government's

response to the Covid-19 pandemic. Please include links to those documents where publicly available.

Please see above

I also gave a range of radio and TV interviews

- 6. Your views as to whether the work of the above-mentioned groups in responding to the Covid-19 pandemic (or Wales's response more generally) succeeded in its aims. This may include, but is not limited to, your views on: a. The composition of the groups and/or their diversity of expertise; b. The way in which the groups were commissioned to work on the relevant issues; c. The resources and support that were available; d. The advice given and/or recommendations that were made; e. The extent to which the groups worked effectively together; and 3 f. The extent to which applicable structures and policies were utilised and/or complied with and their effectiveness.**

I think TAG, TAG-E and TWEG provided a range of guidance documents that were evidence-led and written by a pool of experts. The committees had a good balance of expertise and gender. We lacked a bit of balance of age (particularly representation from the age group 16-25). The meetings has excellent support from Welsh Government administration staff. The reports were produced in a timely way and guided policy. None of our recommendations or advice were subsequently overtured, challenged or needed to be altered.

- 7. Your views as to any lessons that can be learned from the Welsh Government's response to the Covid-19 pandemic, in particular relating to the work of the above-mentioned groups. Please describe any changes that have already been made, and set out any recommendations for further changes that you think the Inquiry should consider making.**

TAG-E: Lessons Learnt

- 1. Behavioural science:** One of the key areas within TAG-E's remit related to the persistence and dispersal of SARS-CoV-2 in both indoor, semi-enclosed and outdoor settings. While we provided guidance to TAG on a range of issues, many of these crossed over strongly into the behavioural science domain). In retrospect it would have been useful to have more behavioural scientists represented on TAG-E. On a similar theme, it would have been useful to have quantitative data on people movement and behaviour in key settings where we were providing guidance (e.g. public transport). **Recommendation:** Ensure that both natural and social scientists are represented on TAG-E.
- 2. Funding to understand the behaviour of SARS-CoV-2 in environmental settings:** TAG-E proved successful at providing evidence reviews and guidance to Welsh Government on a range of environmental issues. These were largely delivered in a timely manner. However, one of the major problems encountered was the over-reliance of these reviews on data generated outside Wales (and the UK). Further, when published data was available it was often of poor quality or not peer-reviewed (or no data existed), making the formulation of guidance uncertain. Many of the key uncertainties, however, could have been addressed by the provision of funding to enable Welsh institutions to undertake primary research. This would have enabled a better understanding of the behaviour, fate and infectious nature of SARS-CoV-2 under a range of environmental scenarios. For example, there were many instances where short experiments on viral infectivity under Welsh temperature, sunlight and humidity conditions would have greatly aided the guidance provided to WG. Although a funding stream was provided by UKRI, it was an extremely slow and unresponsive system

and prone to the idiosyncrasies and conscious/unconscious biases of peer review. The attempts of TAG-E to get UKRI funding to support key knowledge gaps proved ineffectual. A similar scenario was also encountered in late 2021 where information was needed on the likely success of different mitigation options (i.e. NPIs) for reducing the spread of SARS-CoV-2 in schools and other public places. Wales has great expertise in modelling viral movement in indoor environment, however, the lack of resources prevented allocation of staff to undertake the simulations required to address the knowledge gap. **Recommendation:** Transform the way UKRI administers funds in a pandemic or provide an alternative Welsh-centric route for funding.

3. **Membership of TAG-E:** TAG-E relied on the voluntary contributions of individuals from a range of Welsh institutions (e.g. WG departments, PHW, NRW, universities, institutes). Of the people initially recruited to the committee, half of these made no contribution due to commitments elsewhere or a lack of interest. This led to the formation of a core committee of about 10 members who contributed strongly to group discussions, the peer review of evidence, and the writing of reports. With the emergence of omicron and a progressive move to post-covid ways of working it was clear that engagement with TAG-E delined as the pressures of the day job returned. It was very clear, however, that a pan-Wales approach to TAG-E worked best – as all parties and geographical regions contributed strongly. This is important given the differences between the regions and different fields of expertise represented. We also lacked members from the 18-25 age group. **Recommendation:** Keep a sleeping core of TAG-E that can be readily reactivated if a new variant emerges. Include graduate students or PhD students with relevant expertise on the committee.
4. **TAG-E and EDI:** Although TAG-E had a reasonable gender balance it did suffer from EDI bias. It would have benefited from a greater cross-section of ages and cultural backgrounds. For example, this deficiency was particularly apparent in the guidance paper we produced on places of worship. Inclusion of younger representatives (e.g. Postdocs and PhD students) may have given alternative insights and would have helped in the formulation of working papers. **Recommendation:** Seek to broaden the coverage of the group to embrace EDI ways of working.
5. **Communication within TAG-E:** What worked really well was the use of on-line meetings. No face-to-face meetings were held. The coordination of the group by WG (e.g. Jamie Kaijaks, Miranda Morton) with associated secretarial support has ensured effective communication. **Recommendation:** No change needed.
6. **COVID-19 Evidence Centre (CEC):** As the pandemic progressed, CEC came into existence. This proved highly useful to TAG-E in terms of systematically scoping the available evidence on key topics (e.g. semi-enclosed environments, face coverings). This saved time and allowed the evidence to be collected in a systematic way that can be supported by expert evidence from within TAG-E. Regular meetings with CEC ensured good outcomes. **Recommendation:** Ensure that a body such as CEC remains in place.
7. **Behavioural science: Recommendation:** Ensure that both natural and social scientists are represented on TAG-E.
8. **Funding to understand the behaviour of SARS-CoV-2 in environmental settings: Recommendation:** Transform the way UKRI administers funds in a pandemic or provide an alternative Welsh-centric route for funding.
9. **Membership of TAG-E: Recommendation:** Keep a sleeping core of TAG-E that can be readily reactivated if a new variant emerges. Move to monthly and then quarterly meetings for the next year and the review annually. Going forward, broaden the scope into other relevant

areas (e.g. AMR, other viruses). Alternatively, TAG-E could be ended and subsumed into other groups involved in environmental surveillance.

10. **TAG-E and EDI: Recommendation:** Seek to broaden the coverage of the group to embrace EDI ways of working.
11. **Communication within TAG-E: Recommendation:** No change needed.
12. **COVID-19 Evidence Centre (CEC): Recommendation:** Ensure that a body such as CEC remains in place.

8. **A brief description of documentation relating to these matters that you hold (including soft copy material held electronically). Please retain all such material. I am not asking for you to provide us with this material at this stage, but I may request that you do so in due course.**

Point noted.