



Trinity College Dublin
Coláiste na Tríonóide, Baile Átha Cliath
The University of Dublin

Quality Review of the School of Natural Sciences

07th – 09th February 2024

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Appendix 1 – Postgraduate Representative Notes

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1. Executive Summary

The School of Natural Sciences has undergone a comprehensive evaluation encompassing teaching, research, and administration. Despite facing numerous intense pressures and limitations, the school has exhibited commendable achievements in all aspects of its operations.

Research within the school stands out for its excellence, marked by creative and ambitious initiatives. There is a wealth of high-quality, societally relevant interdisciplinary research, reflecting the school's commitment to addressing contemporary challenges. This research prowess positions the school as a significant contributor to advancing knowledge in the natural sciences.

On the teaching front, the school has earned recognition from students for the high quality of instruction and the dedication of teaching and professional staff. This acknowledgement underscores the effectiveness of pedagogical approaches employed within the school and the commitment to nurturing academic excellence.

However, these successes have not been without challenges. The school faces numerous pressures, particularly financial and infrastructure-related constraints. Despite these obstacles, the recently appointed Head of School, new Manager, and staff have demonstrated a proactive approach towards enhancing the effectiveness and efficiency of school operations, structures, and processes.

Moving forward, openness to adaptation and change will be imperative to sustain and augment the quality of teaching and research in the coming decade. The commitment to supporting the leadership and staff in their efforts to navigate these changes is paramount for the continued success of the School of Natural Sciences. In turn, leadership must ensure that opinions of all staff and students are sought, recognised, and responded to, and where appropriate integrated in School development.

In conclusion, the school's evaluation highlights its remarkable achievements amidst adversity. With strategic planning, innovation, and support, the school is well-positioned to uphold its standards of excellence and further its contributions to the field of natural sciences.

2. Introduction

This report sets out the findings of an external review of the School of Natural Sciences (SNS) at Trinity College Dublin (TCD).

The Review Panel was provided with comprehensive documentation prior to a visit to Trinity College Dublin, including a Self Assessment Report by SNS. During the visit, 7–9 February 2024, we held meetings (19 in all) with: College Officers; the Dean of STEM; E3 Finance Manager; FSD; personnel of central infrastructure services (Space planning, Teaching and Learning IT, Estates and Facilities); the Head of School; academic and professional staff; early career stage academics; undergraduate, Masters and PhD students; and members of School committees including those concerned with Teaching, Research, Equality, Diversity and Inclusion, Global Engagement and Outreach. We saw buildings and facilities used by SNS on the main campus and at TTEC /Trinity East campus. Time during the visit was also set aside for the Panel's own deliberations. On the final day, de-briefing meetings were held with the Head of School and with College Officers, and the panel presented its preliminary findings to a well-attended meeting of SNS staff and students.

The Panel is extremely grateful for the assistance received from Roisin Smith, Edel O'Reilly, Shane Moore, and other Quality Office Staff before and during its visit; for facilitation of meetings and site tours by Professor Alan O'Connor, Head of the School of Engineering; and for notetaking by Yseult Thornley. We thank all who participated in our meetings and tours for their time and their helpful and constructive contributions.

The remainder of this report is structured as follows. In Section 3, we outline key themes that emerged from the review and identify two important cross-cutting issues. Section 4 sets out our recommendations, structured according to the Terms of Reference for the review. Supporting argument and further observations are provided in Section 5, which considers strengths and achievements, resources, processes, governance, and the future. Section 6 offers observations relevant to the School Self-Assessment requests.

3. Key Themes and Cross-cutting Issues identified by Review Panel

Here we present in headline form the key themes that emerged from the review (Section 3.1) and identify two fundamental issues that cut across many of these themes (Section 3.2). These themes and issues will be developed and explored in the remainder of the report in relation to evidence gathered during the review and questions that the Panel was particularly asked to address, as set out in the ToR.

3.1. Key themes

1. Substantial strengths of SNS and achievements across a wide range of activities
2. Growth in student numbers outpacing resources – finance, staff time and infrastructure.
3. Ageing, sometimes obsolete and often poorly maintained infrastructure (relevant to, but also independent of theme 2)
4. Identity and interdisciplinarity
5. Communication, information flow and transparency
6. Budget process and timings
7. 'False economies' (areas where modest and timely investment could make a big difference and contribute to more efficient use of resources)
8. Fieldwork: significance and funding
9. The promise of the E3 Learning Foundry
10. Realising the potential of TTEC /Trinity East Campus
11. The SNS Collections: values, uses, governance and space
12. Housing costs and welfare of students and early career staff; effects on recruitment.

3.2. Cross-cutting issues

Two contextual issues cut across many of the themes identified in 3.1 above:

- The extent to which problems currently faced by SNS have 'external structural' causes outside the control of the School (for example, the challenging HEA funding environment); or, instead, are in principle resolvable by structural or procedural adjustments within SNS or Trinity College Dublin.
- A paradox that recurred throughout the review. Increasing UG and PGT numbers is deemed by Trinity College Dublin to be a pre-requisite for further development. But

because SNS resources and infrastructure are not keeping pace, this very policy threatens staff morale and key functions such as strategic planning (driven out by everyday pressures) and research (with implications for resources and reputation).

4. Recommendations according to the Terms of Reference

Below, in Section 4.1, we copy the categories under which the ToR for the Review invited us to make assessments and recommendations. We then set out our recommendations in Section 4.2.

4.1. Terms of Reference for the Review

The Review Team is invited to assess and make recommendations to the University under the following categories:

- i. School Strategy in terms of its fitness-for-purpose to respond to the College strategies, the internal and external environment, emergent risks and opportunities in the relevant disciplines, nationally and internationally.*
- ii. The quality of the School's academic programmes and the teaching and learning resources and learning environment (internal and external to campus) that underpin the delivery of:*
 - a. undergraduate programmes, curricula and graduate attributes*
 - b. postgraduate taught programmes, curricula and graduate attributes*
 - c. postgraduate research programmes and outputs*
 - d. postdoctoral development and advancement*
- iii. The quality of the School's research strategy, including the two research centres within the School, participation in College Research Themes and engagement with Trinity Research Institutes.*
- iv. The availability, distribution and use of resources within the School to deliver on its academic mission. These might be Physical, Infrastructural, Financial or Human and might involve access to Facilities and/or be related to capacity building*

4.2. Recommendations

In this section each bullet point is an individual recommendation

- If the ambition of the School's Strategic Plan – 'to be a world leader in research and teaching associated with the sustainable use of natural resources and human capital' – is to be realised, we recommend urgent action to be taken to ensure that staff and infrastructure are matched to increasing student numbers, in both the short and the longer-term.
- We recommend that special recognition is given to the excellent, loyal, and committed staff in the School operating often in very difficult conditions.

- Given the combination of numerous severe challenges that the school is experiencing, we encourage the School leadership and members to embrace change, flexibility, and adaptation. Delivering the schools ambitions in current conditions will require openness to new approaches to research and teaching and is likely to require a close focus on the most efficient ways of working within the school.
- Short-term action should be taken to bring all teaching rooms of the School up to at least basic standards, including but not limited to power for students laptops, reliable and up to-date AV, and room temperature control. This action to ensure basic-level standards is recommended regardless of the planned E3LF teaching space.
- We recommend that quality of research spaces is levelled-up across the School so that all space would be considered adequate and suitable by national and international standards.
- We recommend that local upgrades necessary to achieve accessibility to teaching spaces and to achieve basic levels of AV and temperature control in the teaching rooms be planned and achieved at the earliest opportunity.
- Views of E3LF appeared polarised. We recommend moving the narrative away from any suggestion that E3LF ‘will solve all our problems’ towards a clear and realistic exposition of how, in practice, the building will be used; what spaces will be freed up as a consequence; and where teaching for which the new building was never intended (e.g. large classes) will take place.
- Further development of Trinity East /TTEC should be promoted, emphasising regeneration potential and safe and easy connectivity with main campus. A reasonable medium-term aim would be to consolidate some school laboratory spaces in more modern surroundings at Trinity East
- Housing costs have a significant impact on the well-being of students and staff (especially overseas students and new and early career staff), which in turn could detrimentally affect recruitment and thus the future standing of SNS and Trinity College Dublin. Serious consideration should therefore be given to investment in subsidised accommodation.
- The current provision of post-award support should be compared to required post-award support and then deviations be prioritised for attention. Responsibilities, timeline, and accountability for revising post-award support should be ensured. In particular processes for the timely hiring of staff appear to require attention.
- We recommend the introduction of a single School-wide system for receiving and acting upon suggestions, criticism, and complaints individually and via representatives. The functioning of the system should be monitored and reported to the School.
- Organisation and operation within Disciplines does not seem efficient for some activities and processes. Centralisation and strengthening at the School level will likely bring savings and may allow better communication between the disciplines. We recommend careful and inclusive consideration within the School of what is most efficiently – and effectively – done at which level in the Trinity College Dublin /SNS setting.
- The School should seek ways to emphasise the positives in having multiple identities, while looking for (genuine) efficiencies in what functions might best be achieved at the level of the disciplines, the School or higher. Maintaining disciplinary identity is important for external presence and for staff and student experience.

- Interdisciplinary working should be recognised and encouraged both within the School and between SNS and other Schools at Trinity College Dublin; and whether it is focused on particular ‘challenges’ or exploring new conceptual spaces.
- We recommend that urgent and concerted efforts are made to deliver the School budget before the financial year for which it applies.
- Professional staff structures, roles and careers should be reviewed and adapted so that professional staff feel more valued in the School and have clear career pathways.
- We recommend that stronger systems and more complete information for induction and mentoring of new students and staff are organised and put in place.
- We recommend a thorough analysis and review of the purpose and function of each collection and the collections as a whole. The possibility that collections come under one organisational umbrella, possibly in one location, should be considered.
- We recommend that the school consider whether there are alternative models for the supervision of final year projects and masters dissertations that might generate efficiencies and reduce the pressure on staff around this work.

5. Supporting and other observations relevant to the TOR

5.1. Strengths and achievements

In our meetings we were impressed by the commitment, loyalty and work ethic of academic, professional and technical staff in SNS. Pride in being at Trinity College Dublin and appreciation of working with colleagues were very much in evidence. As a result of this commitment, and in line with objectives set out in the School’s Strategic Plan, there have been substantial achievements in recent years. These include:

- A doubling of research income over the past five years (compared with the previous five), with income coming from a range of sources including SFI, IRC and ERC.
- A strong publication record; more than 1000 publications during the past five years.
- Maintenance of a relatively high position in global rankings of relevant research areas (Ecology, Biological Sciences and Geography).
- Receipt of prestigious research awards by staff members.
- An emerging shift of emphasis in SNS towards environment, sustainability, and society, focusing on major challenges and interdisciplinary approaches. A good example is the Kinsella Challenge-Based E3 Multi-Disciplinary Project Awards.
- Furthering of interdisciplinary collaboration through research centres including the Trinity Centre for the Environment; SFI-funded iCRAG Centre (formerly the Centre for Microscopy); and the Nature+ consortium (biodiversity and nature-based solutions) maintained by the School.
- Significant changes to undergraduate teaching, including instigation of Joint Honours, contributing to national and Trinity College Dublin objectives on education for sustainable development.
- Growth in UG and PGT student numbers, including international students.
- An undergraduate student body appreciative of the quality of their education, the efforts made by staff, the choice of pathways within SNS, and opportunities to

participate in the Erasmus and Columbia partnerships. (The positive experience is borne out by External Examiners' reports.)

- Globally attractive taught Masters Programmes, with recent innovations including Smart and Sustainable Cities, Global Challenges for Sustainability (under the CHARM EU initiative), and the micro-credential course, Climate Leadership Development.
- Careful and professional attention to EDI issues and Athena Swan Silver recognition in 2023.
- Instigation of important infrastructural developments, notably the E3 Learning Foundry, which, when completed in 2025, will provide significant additional space to facilitate innovative interdisciplinary teaching; and developments at Trinity East (with considerable future potential at this site if resources can be secured).

These strengths and achievements have maintained and enhanced the School's national and international profile in research and teaching, helping ensure that it continues to attract high quality staff and students, as well as research funding and philanthropic donations. The achievements are all the more impressive given that the School also faces multiple interacting challenges, which we address in more detail in the sections that follow.

5.2. Resources

- Resource challenges exist in every sphere of operations.
- Human resources were reported to be stretched so that even basic operations are difficult to maintain.
- Total space available in the School is already under pressure and has been hard hit during the building of E3LF.
- The quality of a considerable proportion of the available space is below that expected of a University with the national and international reputation that Trinity College Dublin enjoys.
- Finances are stretched such that essential student practical experiences, including fieldwork, cannot be funded effectively by the teaching programmes of School.
- Teaching and research equipment in the School is often old (or even obsolete), with no clear plan for servicing or repair, and no plan for replacement.
- Student (UG, PG taught, and PG research) recruitment is very likely limited by the lack of suitable and affordable housing. While this issue is largely outside the control of the School or Trinity College Dublin, it is so important that further consideration should be given to ways of easing the pressures. Staff, especially early career staff, are also affected by housing availability and costs.
- Organizational units (Faculties, School, Departments) in many Universities experience these challenges and pressures. However, we consider it rare that all are present in combination and in such intensity. The staff of the School of Natural Sciences should be commended for their successes and achievements in such an exceptionally challenging environment.
- Some of these resource challenges could be considered temporary: recent (E3 driven) growth in student numbers has occurred before other E3 resources are in place; the E3 Business Model provides for additional staff in all roles; the E3 Learning Foundry

will provide a large amount of new and innovative teaching space; we understand that funding has been reserved to cover costs of refurbishment and repurposing of existing (non-E3LF) teaching spaces.

- Nevertheless, it would likely be misplaced to assume that the resourcing issues mentioned above are temporary and will be resolved in a few years.
- Furthermore, if a large majority of new funding is dedicated to E3, there is the possibility that the School loses the ability to support existing initiatives and activities.
- The School of Natural Sciences has space in many different buildings in several different locations. While this does create challenges, some of these locations are very close together, with even TTEC being reachable in only a few minutes. Hence, we see considerable potential for more efficient and flexible use of space, particularly when space use is managed at the School level, and that benefits can be achieved even with the numerous locations and buildings.
- Facilities at TTEC were impressive. The Earth Surface Research Laboratory and the Variable Atmosphere and Light Laboratory, for example, are clearly state-of-the art, world-class facilities. This suggests that further investment at the TTEC site should be considered.
- The special collections that the School has responsibility for are a valuable resource. A clear plan for the future of the collections is required (see 5.5.6, The Collections).

5.3. Processes

- According to the Self Assessment Report (p. 24), School budgets are commonly not known by the School for some months after the beginning of the financial year (October) and ‘do not issue via Orion until the following year’, presenting ‘a major challenge for account management both at School and Discipline level’. We view this as serious and recommend that urgent and concerted efforts are made to deliver the School budget before the financial year for which it applies. We suggest this be a key performance indicator for financial services (FSD).
- It was clear to us that the school does not have a clear line of sight of the basis for the annual budget which it receives. This makes strategic planning difficult. We would recommend that FSD meet with the school leadership team to provide absolute clarity in this area.
- Distribution of research overheads is ‘even more complex’. The issue of overhead distribution was frequently raised in meetings with academic and professional staff, confirming that they result in considerable difficulties for planning essential School activities.
- The postgraduate experience was generally reported as good but numerous suggestions for improvements were provided to the review team (reproduced in Appendix 1, Postgraduate Representative Notes). One of the most concerning and serious was the clear lack of confidence in School processes for receiving, understanding, and responding to feedback from student representatives: e.g., “It is very clear that complaints from PGs are not well received across the school.” (See Appendix 1.)
- College and School processes and structures appear complex and opaque. The observation was made by academic, professional, and technical staff that many tasks were more difficult and complicated to complete than they used to be. Getting post-

docs appointed was one example (discussed below in this section). Another was the routine task of placing an order.

- Our meeting with Professional Services staff revealed some unhappiness around the evolution of their roles. Issues include lack of communication about changes in Professional Staff (PS) resources, a lack of potential for career progression, and a perceived lack of respect for Professional Staff colleagues from academic staff. These colleagues are a key part of the school and this feels like an issue that should be addressed urgently. Moving to a more school-based Professional Staff team might offer some opportunities here.
- Some professional staff expressed that they felt that the School “Always want to hire another academic” and that this leaves the professional staff feeling undervalued, overworked, and working out-of-role. The extent to which this is a communication and trust issue, and to which it reflects the reality of the School processes was not possible to discern.
- Induction of staff appears to be quite ad hoc and has left some new staff with lack of important knowledge. Good induction processes are especially important when College and School processes and structures are as complex as they appear to be. More experienced staff reported that they had learned how things work and who to contact to make things happen. The EDI Committee reported that it plans improvements in onboarding EDI.
- There was some evidence of a mentoring scheme for tenure-track assistant professors, but its effectiveness was unclear.
- We understand that there is an Assistant Professor Development Programme, including courses. However, there was dissatisfaction with the nature of the courses and that subjects that would be useful (e.g., teaching theory, grant management) were not available. This is not an uncommon complaint across the sector but it is an area that can always be improved and merits attention.
- School leadership and the SAR reported negligible post-award support. Furthermore, some post award processes, e.g., approval process to start hiring research project staff, were not fit for purpose. We view efficient, prompt, and reliable post-award support as an essential component of a competitive research institutions.
- One specific issue reported to us relates to delays in recruiting new staff. This appears to be causing widespread staff dissatisfaction, impacting on staff workloads and causing delay and frustration around research activity. The view was expressed to us that the delays primarily relate to five levels of sign off required for new posts. If this is true it is clearly inefficient and indicates a lack of trust in the system. Good governance would require sign off at two levels close to where the budget is held. We would recommend investigating the potential to streamline this process.

5.4. Governance

5.4.1. Leadership

- Our impression is that SNS has a strong leadership group who are committed to making a success of the School and building the wider school identity.

- The Head of School is doing an excellent job. Having resolved some challenging financial issues there is now a clear strategy to develop the School as a coherent body of disciplines working together to make an interdisciplinary contribution.
- The 'exam questions' that the School set the reviewers indicate a clear direction of travel which we are supportive of and which we address further in Section 6 (Observations relevant to School Self-Assessment requests).
- In an environment which is severely resource-constrained, the challenges faced by the School leadership team are significant. Maximising efficiency will require some centralisation of resource and decision making at School level. It will be important that the efficiencies associated with centralisation will be perceived to be to the benefit of everyone. Many colleagues were frustrated by slow and opaque services (which we think were faculty and college level). It will be important that new school processes are well integrated with the centre. In a context where disciplinary identity and engagement is stronger than school identity further centralisation will also require diplomacy, a clear engagement strategy, and careful deliberation. It is important that the School is supported in this.

5.4.2. Disciplines

- Disciplines are the core of academic identity. Students largely sign up to study in a discipline not a school and staff have an engagement with the discipline beyond the institution, which underpins much of the national and global academic influence of colleagues and SNS.
- The interdisciplinary work that is key to many of the world's wicked problems requires roots in strong disciplinary expertise and respect for the expertise of others.
- The four disciplines in the school have a long history in Trinity College Dublin and they are a key asset in terms of alumni engagement.
- The chairs in the School recognise their role in intellectual leadership, in mentoring early career staff, and where relevant their role as Head of Discipline.
- Notwithstanding these key considerations, the size of disciplines in the School is small compared with many competitor institutions.
- A consequence of this is that whilst the discipline is a fundamental unit in terms of identity, and to some degree in terms of teaching delivery, in SNS the disciplines would not appear to be the most efficient organisational unit for some activities. We would recommend careful consideration of what must be organised at disciplinary level.
- Particularly in the severely resource-constrained environment of Irish higher education the scale of the School and the potential to organise and prioritise across disciplines needs to be harnessed.
- We heard from many colleagues that there are challenges of communication in the School or identified perceived challenges that appeared to us to stem from difficulty in communication. Our view is that these challenges are to some degree linked to disciplines still operating in silos, and in particular the challenge of what in many universities would be a medium-sized department operating across 16 sites.
- Our view is that whilst many of the challenges the School faces are rooted in resourcing issues there is scope to make progress on communication and prioritisation of scarce resources by strengthening the School relative to the disciplines in operational and financial matters. Alongside this it will be essential to work with

colleagues to specify, preserve and strengthen the cultural practices, spaces and distinctive contributions that underpin disciplinary identity.

- We note that the review of the School in 2010 wrote: *“The School ... would benefit from ... stream-lined administrative organisation with increased decision-making power focused to School level. Administrative layers should be reduced and discipline-driven planning de-emphasised.”* We have independently come to what seems to be a similar conclusion, and were not presented with evidence that this advice from 2010 was acted upon.

5.4.3. Centres

- All of the existing centres appear to be adding value in quite distinct ways (see also Section 5.4.4, Facilities).
- There is potentially a leadership challenge because of resource limitations and the competing demands on research centre director’s time. This felt particularly acute in the context of the Nature + centre where the directors both have other significant leadership tasks. We felt that consideration should be given to how the aims of the Nature + centre are taken forward, particularly in the context of the major Climate + initiative in the School.

5.4.4. Facilities

- The Centre for the Environment is an example of best practice providing high quality central laboratory facilities at School level. However, this resource is aging and there appears to be no planning for the maintenance of these facilities, which is a risk to this activity in the short to medium term. Furthermore, it is difficult to not conclude that the College fails to appropriately prioritise such an exemplary facility given the very poor state of the premises the Centre currently occupies.
- The School should consider appropriate financial and governance models to provide a sustainable future for the Centre.
- We also saw examples of high-quality laboratory facilities across the school. Particularly impressive was Trinity East where the flat spaces lend themselves better to modern laboratories than some of the challenging Victorian spaces.
- The School may want to consider whether an appropriate medium-term aim would be the establishment of state-of-the-art central school laboratory facilities at Trinity East.
- We saw some examples of failing equipment which has the potential to put major elements of the teaching and research capacity at significant short-term risk. The School should consider whether School level governance of laboratory facilities would allow for better prioritisation in a resource constrained environment. The recommendations on technical staffing are also pertinent here (see Resources, Administrative and Technical Support in Section 6).

5.5. The Future

As a review panel we have identified a series of future-focused issues that the school may want to consider as part of strategic planning.

5.5.1. Teaching Spaces

- E3LF is a potentially transformative development and a major opportunity for teaching and learning within the School.
- The spaces that will be available look to be high quality but may also require some rethinking of how some teaching is delivered and we would encourage the School to think innovatively about how to maximise the pedagogic benefits of the new spaces.
- Some staff scepticism about the project was apparent and a clear programme of staff engagement which allows co-creation of approaches to using the space seems to be an important part of making a success of the investment.
- Beyond E3LF some of the teaching spaces in the school are below an acceptable standard. It appeared to us that the conversation about upgrading these spaces was something of a catch 22, with the central team only willing to accept spaces where investment had already been made and the school not willing to give up much-valued control of spaces where significant cost has been incurred. This may be a space where a Faculty/College lead is required.

5.5.2. Growth and the challenge of student numbers.

- The school has undergone considerable planned growth in support of the E3 initiative. This has led to significant strains on staffing resource particularly around the supervision of final year projects and masters dissertations, which expands in proportion to the number doing the course. We were told that going much beyond five supervisees was a challenge in workload terms. Given that Student : Staff ratios at this level are unrealistic we would recommend looking closely at models of supervision. In other institutions in the sector supervising 10 or even 15 students is not particularly unusual but this means supervising in a way that steps away from a 'Phd-style' model with close supervisor–student 1:1 support through the academic year.
- Our recommendation would be that the school consider reviewing the supervision model in this context drawing on practice across the sector. Approaches to consider might include group supervision, limitations on the reading of drafts or hours of supervision, or a cut-off point to supervisor input at some point ahead of submission so that the drafting of the thesis or project is an independent activity.
- In this context the School may wish to consider the ways in which it staffs supervision of student project work. There may be scope for wider use of adjunct staff to supervise. This can be a valuable opportunity for post-doctoral fellows or advanced PhD students to widen their experience.
- There is also a resourcing issue relating to student numbers. We were told that many staff were resourcing student project work out of research funds. This is probably not appropriate and certainly unsustainable with enlarged cohorts. A quick win for staff morale and student experience would be to centralise funding for student project work.
- The proportion of international students that the School teaches is still quite low compared to similar institutions. There may be scope to increase this proportion or overall numbers outside of E3 targets in order to generate much needed funds to support the School's activity. We understand that there are well-organised

recruitment efforts at Trinity College Dublin but as discussed elsewhere housing is a particular issue for overseas students and might be acting as a deterrent.

5.5.3. Field courses

- The school of Natural Sciences teaches across a range of disciplines in which students directly experiencing a range of natural and built environments is an essential part of their education.
- At present the School teaches a several of high-quality field courses, which ensures that students are well prepared for employment and further study in their disciplines.
- Cost pressures inevitably lead to scrutiny of field course budgets. Our recommendation is that the field experience must be preserved for the integrity of teaching across the School.
- EDI concerns around access to fieldwork were expressed by staff. These relate to costs as well as to support for students with diverse needs. The School and the sector are thinking hard about these issues and it is important that they are a core part of fieldwork planning.
- Similarly, the sector-wide focus on the sustainability of field courses should be a consideration in fieldwork planning (recognising the occasionally divergent requirements of environmental and financial sustainability in a resource-constrained environment).

5.5.4. Research Strategy

- Some excellent work has been done by school leadership in mapping the current research strengths of the school.
- The next step as recognised by the team is the development of a forward-facing school research strategy that squares the circle of being inclusive, providing focus and supporting prioritisation of scarce resources.
- Co-creation of this strategy through extensive engagement with disciplines and staff may be an opportunity to further develop school identity.
- The School is very well placed to build interdisciplinary bids in spaces defined by global grand challenges. There is already interdisciplinary working with other Schools and, to some extent, within SNS. Both should be recognised and encouraged.
- Our view, based on past performance, is that it is a reasonable aspiration for the disciplines in the school to aim for global top 100 rankings and the research strategy should underpin operational activity to achieve this aim. Global top 100 is a key marker for international student recruitment in some markets.

5.5.5. The School name

- School of Natural Sciences is a traditional name which overall describes well the constituent disciplines of the school. Human geography does not fit comfortably within this name, reflecting a familiar issue for geography within university structures, given the breadth of the discipline. (We note too that the scope of Natural Sciences is drawn more widely in some other institutions.)

- Our view was that prior to considering re-naming, the School should arrive at a settled view on why this is desirable. Recruitment and staff identity are both valid reasons, but they may not lead to the same conclusion and there may be other ways to achieve these aims.
- Experience from other institutions is that a re-naming exercise that has buy in from all colleagues through appropriate consultation and co-creation is a non-trivial task. Re-naming for recruitment purposes would also require some investment in market research.
- Notwithstanding these comments, we felt that there might be value in incorporating the words Society and Environment in any eventual re-naming. The former would reflect concerns with science that makes a difference and bring the work of human geographers, who work in the social sciences and humanities, more clearly within the remit. The latter clearly binds the research interests of the school. Both might be positive from the point of view of alignment with student interest.

5.5.6. The Collections

- The School has responsibility for zoological, geological and botanical collections of international importance, which it recognises as unique and irreplaceable. It is relatively unusual for a school to have direct budgetary responsibility for such extensive historic research collections and whilst this is a considerable resource for the school to draw upon, it is also a responsibility, and even a burden.
- While the collections are both maintained and developed, at present the housing, staffing and general resourcing of the different elements are largely below the levels that might be expected for such significant materials. External funding (€1.5m from Department of Heritage and Electoral Reform) has secured investment in the nationally and internationally significant herbarium and associated library. The Zoology Museum is housed in the Zoology Building and is normally open to the public. The Geological Museum was relocated in 2014 to Trinity East (where we saw an ongoing cataloguing process) and opens by appointment only. A small portion of its collection has been returned to the Museum building with the intention of display and welcoming visitors. However there seems to be no overall plan for the future housing, staffing and resourcing of the collections.
- In this context, the Panel's suggestion is that the school undertake a comprehensive review of its strategy for collections, with the involvement of all disciplines. Key points to consider might include:
 - i. What is the appropriate governance model for the collections?
 - ii. Related to point 1, what are the key uses of the collections (current and potential)? For whom and in what ways do they have value? We understand that they are used extensively in research and teaching, and that their role in outreach (in some cases attracting large numbers of visitors) has the potential to become more significant. There will also be a role in E3, for example in use of the Botanic Garden as an outdoor laboratory. A clear view on the different values and uses of the collections would support decisions on their future.
 - iii. Should the collections remain as individual resources or be brought together (physically and/or in terms of governance) as a Natural Sciences collection?

- iv. What resources (including housing and staffing) are required for proper maintenance and care of the collections? How might further funding be secured? Currently only limited income from visitors flows directly to the collections, despite high numbers at certain times. Could this model be adjusted?
- v. What is an appropriate space for the collections? How much should be on permanent display and how much in storage or in use for other purposes?
- vi. What are the current and desirable provisions for public access?

The Freeman Library

The Panel further proposes that the Freeman Library, which has a long history as the library of Geography in the Museum Building, is included within any review of the collections. This library is the repository for the collection of Walter Freeman, as well as other important materials, including books, journals and maps. It is valued and used by staff and students for research and study, and has significance for Geography alumni/ae. The room currently operates on card access and some material can be borrowed. However, the loss of the former librarian is keenly felt. We were not able to establish why, beyond general resource constraints, this particular post had disappeared, or the extent to which the room and/or materials within it can be accessed in the absence of a librarian. These issues merit consideration in a review of collections. It may make sense to treat two issues separately: that of the stewardship of the library collection; and that of the preservation of access to high quality and valued study space for students (which appears to be an important element of identity for geography students).

6. Observations relevant to School Self-Assessment requests

In this section are comments and questions provided by the School. These are reproduced in italic typeface. Comments from the review panel are in normal typeface.

We have identified several key issues across our activities that we would particularly like the external review team to provide input on.

School Identity & Purpose. *The School of Natural Sciences is still relatively young and legacy affiliation towards the old autonomous departments is still evident. While there is a harmonious relationship in general across the School towards teaching, research and administration, there remains a question as to whether the School name (i) captures and defines best our shared goals and expertise, and (ii) positions us as an attractive entity both nationally and internationally to become a driver of excellent and internationally competitive teaching, research and societal impact. Indeed, the School is ideally and uniquely positioned to make an international impact in the area of socio-environmental sustainability and we are also aware that we need to recognise and build on the international reputation of our component disciplines and the benefits of a clear School identity for our staff validate the panel reviewing the name for our School.*

The panel took the view that whilst disciplinary identity is at the core of staff and student experience, given the scale of the school there is a need to simplify and centralise operational processes and decision making by moving to a more strongly school-based operational model. This will require a hard look at what underpins identity and what is simply generating extra work for colleagues. The school is well placed to make interdisciplinary contributions (and it is important that the faculty and college recognise that for SNS interdisciplinary can mean within school) and building stronger links across the School will support this.

We agree that an appropriate school name could be part of a strategy to build school affiliation but recommend that this decision is made in the light of a clear assessment of what renaming is trying to achieve (see Section 5.5.5, The School name).

Resources. *A key priority for the School is to ensure that we have the necessary resources to grow in line with our strategic vision. This is coupled with an ongoing requirement to meet our E3 growth targets in a sustainable manner. This has proved extremely challenging to date with limited or no correlation at School/Faculty/College-level between increasing student numbers and space and personnel requirements. This can be considered across three key areas:*

Responses to each area below:

Resources, Academic Support: *The current workloads indicate that staff are at capacity, and this limits the School's potential to act and think strategically towards addressing teaching and research needs and adjusting curriculum offerings to create more interdisciplinarity amongst our Programmes. It also limits capacity to enhance research productivity and excellence. While the introduction of E3 has facilitated a number of new Assistant Professor roles within the School, overall academic numbers have not jumped substantially with several*

retirements not leading to a direct replacement. Increasing student number targets should be directly linked to additional staff across all categories.

Growing student numbers have put pressure on staff workloads. Several staff identified project supervision as a particular pinch point. We felt there was a need to review the models of project supervision to move to more efficient approaches commensurate with increased student numbers (see 5.5.2, Growth and the challenge of student numbers).

Resources, Administrative and Technical Support: *This has been a major challenge given the financial status of the School and remains a priority. We are incredibly fortunate to have such committed and hardworking technical and administrative staff who have accommodated a remarkable expansion in activities with almost no (or relatively little) increase in staffing. While the scale and complexity of School teaching and research activities has significantly expanded over the last ten years, our administrative support has not. The structure and grading of staff does not always align with the tasks or responsibilities at hand. Similarly, at a technical level, the distribution of staff and supports is very uneven. A second major challenge has been the promotion policy in College, leading to a situation where high performing staff leave to secure higher paid positions in College, leading in turn to a lack of stability in the School. To alleviate this somewhat, the School is in the process of proposing a restructuring of the functions across the School which would more evenly distribute resources and provide more opportunities for staff to develop and progress (Report to be provided during the review). We would look to seek additional College funding to support this.*

It was clear to us that administrative and technical support is increasingly under pressure within the School, with a number of posts vacant. We agree that a move to more school-based management and organisation of technical and administrative staff might present efficiencies whilst also offering a structure within which colleagues could progress without leaving the school. Considerations such as unifying the collections (5.5.6, The Collections) are pertinent here. We did not get a very clear view of administrative processes but alignment of processes across disciplines would also be important to consider in this context.

Resources, Research Support. *The School has become increasingly reliant on short term postdoctoral and research assistant support to meet and advance our research objectives. This does not cover the additional administrative burden and results in a systemic loss of knowledge and expertise every 3-5 years as contracted staff move to new roles. This has been exacerbated due to limited pre- and post-research award support available directly via College and this is impacting on the School's capacity to directly support academic staff to apply for and manage new awards. The School would like to explore developing an administrative unit specifically for research funding (pre & post) support that would allow us to (i) develop and retain talent and knowledge, (ii) increase research funding submissions, (iii) improve journal publications and rankings, and (iv) develop the School's profile internationally. Moreover, this would reduce the burden on central services. This is already in trial to some extent as the School directly manage a 0.5 FTE pre-award staff member. We therefore envisage that this could be expanded, with support from College, to include post-award support.*

Having pre- and post-award support close to the academic units is valuable and likely to help achieve the aims for research support. Finding space in the school budget to provide

additional support seems appropriate if the current central resource is inadequate. However, one issue to consider would be the concerns of Professional Service staff (see Section 5.3, Processes). It will be important that any school-based resource is well networked with wider faculty- and college-based activity in this area. Otherwise, there is a risk that staff move on for other opportunities. Being overly focussed at School level could mean that this leads to the loss of critical expertise. In this context, at the scale of the School there is a risk of having a single point of failure.

Finances. *Ultimately, all developments are contingent on financing and this remains a key driver in defining the School's trajectory over the coming years. The challenge to date for the School has been understanding how the College financial model operates and how distributed funds can be tracked back to equivalent FTE values. This is not a transparent process, and this has meant that budgeting and estimation of FTE values are extremely difficult and often inaccurate at School level. As such, the School has been under great pressure financially over the past number of years, largely due to issues outside of our control (i.e. lack of clarity on the distribution of funds within the BBM model (now under the BPA model) and the correlation with covering ongoing core staff costs). This has greatly constrained our activities and hiring capacity and directly impacts on staff morale and individual career development. Furthermore, this has also challenged and constrained our ability to deliver field teaching in a cost neutral manner. Field teaching is a necessity if we are to remain at the forefront of our teaching and research expertise.*

Although individual workloads and resourcing capacities are at breaking point, our E3 targets require further growth in student numbers in the coming years. For these reasons, it is critical that the School establish a clear line of communication with both Faculty and College services in explaining and providing the necessary financial information and supports in a timely manner to allow the School to act.

To that end, the School has made substantial progress in the 2022/23 academic year and improved our overall financial position. This would not have been possible without close examination of our accounts. However, if we are to realise our ambition over the coming years, greater integration and clarity across the functions is required.

We recognise the acute financial pressures the institution and the School are under. The school is to be congratulated on the progress it has made in its financial position. Given that the national financial position seems unlikely to change in the short term it is essential that the School explores efficiencies in its systems (e.g. 5.4.2 and 5.5.2). International student growth is a potential pressure release valve for finances if efficient approaches to teaching the additional students can be found. The school should explore whether there is scope for growth beyond the E3 mandated growth to support key initiatives within the school.

Research. *The School of Natural Sciences has an international reputation across a number of research areas but there are a number of significant risks that threaten our future performance, namely:*

- i. There is a need to maintain expensive core facilities and infrastructure without any direct institutional support. This has made it very difficult for the School to manage and maintain key infrastructures which are critical to successful research funding bids and innovations;*

- ii. *The challenging research funding environment with insufficient funding for investigator-led research creates an ongoing challenge for all academics. This is enhanced further by the lack of direct research-specific support (administrative and technical);*
- iii. *Reduced PhD numbers due largely to external factors outside of our control (e.g. cost of living crises and stipend rates);*
- iv. *A financial model (BPA) that only allows expansion based on increased activity and does not provide back an equitable or traceable share of FTEs to evaluate future incentives.*
- v. *This results in an underlying incentive to increase teaching activity, which inevitably leads to increased teaching loads and consequently less time for research. The School has looked to address this in part directly by introducing specific supports for PIs registering research students as of January 2024.*

Issues for consideration by the Review Team

Although there has recently been a major review and restructuring of undergraduate teaching across College and the introduction of the Trinity Education Project (TEP), we would like the panels opinion on our current activities, recent innovations and the sustainability of our teaching offerings over coming years.

One of the most frequently mentioned barriers to sustainability of teaching for which the School appears to have independent control was project supervision. We have mentioned this issue and our recommendations elsewhere in this report. Furthermore, any and all measures to simplify and standardise in order to make teaching administration and implementation more efficient should be considered.

The School's increased commitment to postgraduate taught courses, the likely benefits and impact on other activities, including research.

See comments above on growth (Section 5.5.2, Growth and the Challenge of Student Numbers). In the current financial position this may be essential, so it will be critical to consider efficient teaching models which allow an increase to happen without reducing research time.

The School's research profile, how this is changing and whether we are appropriately positioned in an international context to increase our outputs and reputation over the next 5-10 years.

The School is performing extremely well in research with some impressive facilities and some excellent recent grant successes (5.1 and 5.2). The mix of disciplines in the School means that it is very well placed to win significant funds and make major contributions around interdisciplinary responses to global grand challenges. The development of a clear research strategy and work on building cross-discipline collaboration will be important to developing these contributions. An aspiration to be top 100 across the disciplines seems reasonable given the status of the institution but given the scale of the disciplines it will require school level working to support the necessary critical mass. (5.5.4 and 5.4.2)

The impact of College structures on core facilities, administrative and technical staff and how these impact on teaching and research in the School.

We have mentioned several faculty and college processes and structures (e.g., financial transparency and post-award support) that could be improved. Please see the recommendations and supporting text.

This review will provide an invaluable opportunity to reflect on the current direction of travel within the School and whether we need to reconsider our priorities, in particular:

- 1. How can we embed a collective identity, purpose and mission for the School both internally and externally and improve communication channels of engagement at all levels?*

We agree with the schools diagnosis of these as core issues. Key elements of an approach are largely outlined in previous sections but these would include 1) some centralisation of school processes 2) a school research strategy that supports and promotes interdisciplinarity 3) in the medium-term considerations of space allocation including the potential for shared laboratory spaces (Trinity East?)

- 2. How do we deal with the challenging resource-limited environment (i.e. space, capacity, and workloads) in a manner that allows us to balance, sustain and grow research and teaching within the School?*

This is the key question which runs through our report. We recognise the very significant challenge. It is not easy but our recommendations focus on identifying efficiencies at school scale and potential growth to support income (see 'Finances' in Section 6, Observations Relevant to School Self-Assessment Requests).

- 3. How can we sustain internationally competitive research in an environment of restricted support funding for infrastructure and increasing teaching and administration while maintaining staff wellbeing and/or the student and researcher experience?*

Important that a financial plan is developed for the rolling replacement of critical infrastructure.

- 4. Should we continue to expand taught postgraduate teaching activity and how do we do this in an optimal manner to achieve the School's mission?*

Given the resourcing challenges facing the School and the institution, the potential to further expand overseas PGT provision in order to support investment in the school needs to be seriously considered. This will require identification of appropriate spaces and models of teaching delivery.

5. *How can we further incentivise multidisciplinary research and teaching to exploit our position within E3 and enhance our cross-cutting areas of expertise?*

The School is well placed and performing well in terms of multidisciplinary research. Individual researchers are performing such research within and outside the School. Development of the School research and the School teaching strategy should include analysis of what further multidisciplinary work is required, what opportunities exist to exploit, and what opportunities exist to steer the multidisciplinary research agenda. The School, acting in combination with other Schools and Units, will likely lead to greater success.

Appendix 1 – Postgraduate Representative Notes

We were impressed by the thoughtfulness of the postgraduate representatives, who had taken the trouble to meet and prepare a document for the panel's consideration. Their thoughts feed into comments in the body of this report but in this appendix we insert, for the School's consideration, images of a document provided to the Review Panel during their meeting with the Postgraduate student representatives.

School Quality Review- PG Notes

It should be noted that Postgraduate Students (PG's) in the School of Natural Sciences (SNS) have a generally positive experience at Trinity. Research PG's express that they appreciate the vast facilities available and the social scene particularly "Friday Beers" making the SNS a good PG community. Taught PG's speak highly of the breadth of modules available to them as well as the flexibility of assignments allowing them to direct their course in a direction to suit them.

Please note the following points are ranked by order of importance following a vote by PG reps, based on surveys and meetings with their cohorts.

All PG Programmes

1. *Communication and administrative processes*
 - 1.1. Communication between Lecturers, Technical staff, Administrative staff and students is lacking. Procedures aren't clear for who to go to with which issues and administrative processes need streamlining across all SNS disciplines for ease of students and faculty.
2. *Facilities*
 - 2.1. Desk spaces for research students are limited or inappropriate for some disciplines and ample for others. In order to break down divides between disciplines sharing desk spaces for PG's across the school would be a more cohesive.
 - 2.2. It is often unclear who to speak to about use of equipment and there is a lack of standard operating procedures causing equipment to break.
3. *Staffing*
 - 3.1. Staff are often not replaced once they leave. This has led to a rapid decrease in administrative and technical staff who are often the first line of communication for PG's.
4. *Complaints System*
 - 4.1. It is very clear that complaints from PG's are not well received across the school. There is a lack of clarity on a chain of command for the complaints and a lack of follow through and follow up with students. PG's are very often seen as the problem with staff backing each other up rather than supporting students and resolving problems.
5. *International Students*
 - 5.1. International students need some kind of welcome package, particularly assistance and understanding of PPS numbers etc. Students can't be paid until they have this and some students don't get paid for months when they start their PhD causing huge stress.

6. EDI

- 6.1. Despite our silver Athena swan EDI is severely lacking in the school. Geology particularly suffers with a lack of female representation which is keenly noticed by PG's. PG's do not have an advocate that they feel comfortable reaching out to or discussing problems with (academic, health, or otherwise).

Research Programmes

1. *Clarification on the organisation of Research Deliverables*

- 1.1. We need an up-to-date handbook for PGs and Supervisors that provides clear deliverables and deadlines.
- 1.2. This should include an outline of which forms are needed every year and who they are to be sent to, templates for confirmation reports and thesis, etc.
- 1.3. It needs to be emphasised to Supervisors how important these deliverables are and that students are to be given ample time to complete/write them.
- 1.4. It should also contain instructions for how expenses work, and which accounts we can use. There seems to be confusion a lot of and fallout in some disciplines.

2. *Research MSc clarity*

- 2.1. The research MSc tends to follow the same pathway as a PhD but isn't simply a mini-PhD. There is a lack of clarity on deliverables and expectations it should have a handbook- separate to the PhD handbook.
- 2.2. There seems to be a lack of direction for career opportunities aside from moving on to a PhD.

Taught Programmes

1. *Quality of English for students*

- 1.1. The English speaking/writing ability of some international students is below what would be expected for MSc level work. For group projects this can cause issues with people losing marks for bad English but it shouldn't be down to some students to do more work than others by having to check over everything. These issues diminish the integrity of the degree for some students and takes away the opportunity for higher marks.

2. *Deadlines*

- 2.1. Deadlines often come all at once especially between departments and there could be better communication of this. Time management isn't always possible when assignments aren't set until later in the term. Due dates and deadlines should be provided at the beginning of the term so students can prioritise assignments.

Thank you for taking the time to read our Summary document.

Sincerely,

SNS PG Reps.

Appendix 2 – Schedule of events

Day 1: Wednesday 7th February 2024

Time	Meeting	Location
09.00 - 09.10	Collect Reviewers from hotel	
09.10 – 09.40	<u>Meeting 1</u> Introductory Meeting with College Officers	West Theatre Meeting Room
09.40 -10.00	<u>Meeting 2 (ToR 4)</u> Finance Meeting	West Theatre Meeting Room
10.00-10.20	<u>E3 Initiative Presentation</u>	West Theatre Meeting Room
10.20 - 10.30	Transfer to School and Private Meeting Time	Transfer to AAP Boardroom
Theme 1		
10.30-11.00	<u>Meeting 3</u> Introduction and Overview	AAP Boardroom
11.00-11.45	<u>Meeting 4 (ToR i and v)</u> School Governance Structure and Vision	AAP Boardroom
11.45-12.15	Light Lunch	Transfer from AAP Boardroom to Freeman Library
12.15-12.45	<u>Meeting 5a (ToR iv and v)</u> Campus Facilities T&L/Research Space Discussion	Museum Building – Freeman Library
12.45-14.00	<u>Meeting 5b (ToR iv)</u> Tour of Campus Facilities T&L/Research Spaces (Part 1) As per Tour Schedule 1	
14.00-14.15	Private Meeting	Transfer back to AAP Boardroom
14.15-15.00	<u>Meeting 6 (ToR iv and v)</u> Professional Staff	AAP Boardroom 4.34
15.00-15.45	<u>Meeting 7 (ToR iv and v)</u> Meeting with Early-Stage Academics	AAP Boardroom 4.34
15.45-16.00	<u>Private Meeting</u>	
16.00 - 16.45	<u>Meeting 8 (ToR i, iv and v)</u> Integrating School Identity and Values into the Future – Chairs Perspective	AAP Boardroom 4.34
16.45 -17.00	<u>Private Meeting - Debrief end of Day 1</u>	

Day 2: Thursday 8th February 2024

Time	Meeting	Location
Theme 2	Teaching & Learning - Now and into the Future	
09.15 – 10.00	<u>Meeting 9 (ToR ii (a))</u> Undergraduate Teaching & Learning	AAP Boardroom 4.34
10.00 -10.30	<u>Meeting 10 (ToR ii (a))</u> Undergraduate Curricula – Student & International Perspective	AAP Boardroom 4.34
10.30-11.00	Private Meeting Time	
11.00-11.45	<u>Meeting 11 (ToR ii (b, c,))</u> Postgraduate Teaching & Learning	AAP Boardroom 4.34
11.45-12.15	<u>Meeting 12 (ToR ii (b, c,))</u> Postgraduate Taught and Research Students	AAP Boardroom 4.34
12.15-12.30	<u>Private Meeting Light Lunch (with PG Renewal Presentation)</u>	AAP Boardroom
12.30-12.45	Continued. Private Meeting Lunch	AAP Boardroom
Theme 3	Research Activity, Global Engagement, and EDI initiatives	
12.45-13.15	<u>Continued. Private Meeting Lunch (with Research Presentation)</u>	AAP Boardroom
13.15-14.00	<u>Meeting 13 (ToR i, iii, iv, v)</u> School of Natural Sciences cross cutting research themes & future objectives (Research and Research Centres)	AAP Boardroom 4.34
14.00-14.15	<u>Transfer</u>	From AAP to TTEC
14.15-14.55	<u>Meeting 5b (ToR iv) Continued</u> Tour of Campus Facilities T&L/Research Spaces (Part 2)	Trinity East Campus (TTEC)
14.55-15.05	<u>Transfer</u>	From TTEC to AAP
15.05-15.15.	<u>Private Meeting Lunch</u>	AAP Boardroom 4.34
15.15-16.00	<u>Meeting 15 (ToR i and v)</u> Equality, Diversity and Inclusion practices for School of Natural Sciences	AAP Boardroom 4.34
16.00-16.45	<u>Meeting 16 (ToR i, ii and v)</u> Enhancing Global Engagement and Outreach across the School of Natural Science.	AAP Boardroom 4.34
16.45-17.00	<u>Private Meeting-debrief Day 2</u>	

Day 3 : Friday 09th Feb 2024

Time	Meeting	Location
09.00-09.15	Collect reviewers from hotel	
09.15-10.00	<u>Reviewers Discussion Time</u>	West Theatre Meeting Room
10.00-11.45	Reviewers break and work on draft report and review findings	West Theatre Meeting Room
11.45-12.15	Reviewer Lunch	West Theatre Meeting Room
12.15-12.45	<u>Meeting 18- Wrap-up meeting with Head of School</u>	West Theatre Meeting Room
12.45-13.15	<u>Meeting 19- Wrap-up meeting with College Officers</u>	West Theatre Meeting Room
13.15-13.30	Transfer to Museum M4 Lecture Theatre	Transfer to Museum Building
13.30-14.00	Exit Presentation	M4 Lecture Theatre
14.00	Reviewers Depart	Museum Building



Chuig / To: **Quality Committee**

Ó / From: **Professor Ian Donohue; Head of School, School of Natural Sciences**

Dáta / Date: **20th May 2024**

Tagairt / Reference: **School Response to Quality Review:
School of Natural Sciences**

First, we would like to thank the external reviewers (Professor Susan Owens, Professor Owen Petchey and Professor Martin Evans) and the internal facilitator (Professor Alan O'Connell) for their time and commitment in reviewing the School of Natural Sciences and for considering the strategic direction of the School's activities, ambitions, and outputs. We very much appreciate the enormous level of work that is invested in any such school review and are most thankful for the recommendations and insights provided by the panel to us in prioritising and capitalising on our interdisciplinarity and shared ambitions for the School.

Overview from Reviewers:

Overall, the School Report was extremely positive and acknowledges the huge effort and contribution by all staff and students within the School with respect to both teaching and research. Indeed, it was very reassuring to hear that the reviewers note that research within the School stands out for its excellence, marked by creative and ambitious initiatives, and that there is a wealth of high-quality, societally-relevant interdisciplinary research ongoing within the School, which is well-positioned to address contemporary challenges. On the teaching front, the reviewers noted that the School has earned recognition from students for the high quality of instruction and the dedication of its teaching and professional staff. This acknowledgement underscores the effectiveness of pedagogical approaches employed within the School and our commitment to nurturing academic excellence. Most importantly, the report recognises the hard work and dedication of our staff in spite of the significant and growing demands arising from responding to increasing numbers of students and modules.

We thank the reviewers for their comments, while at the same time acknowledging the numerous intense pressures and limitations the School is currently facing in all aspects of our operations. In this response to the External Reviewers School Report, we have considered the issues raised carefully, and provide brief comments and actions (upon which we will expand further in our Implementation Plan). Some of the recommendations proposed by the reviewers can be addressed at School level, while others must be addressed at Faculty and/or College level.



1. Finances

We agree with the Panel regarding the need to clarify and simplify the financial model in Trinity to improve transparency and functionality for the School. The budget provided to the School underpins many of its key activities and associated budgetary constraints impact directly on the ability of the School to operate optimally and to plan for evolution and growth. School budgets are driven by College-wide policy issues, and the financial model in play at the time. As was noted within the Quality Review by the Financial Services Division, the School is currently operating under the Budget Planning and Allocation (BPA) model. In addition, as a member of the E3 Schools, we are also assessed as part of the E3 Financial Business Plan annually. There is, however, considerable concern as to whether the School is being impacted negatively by the introduction of the BPA model, as we have been unable to ascertain clear workings for the distribution of our annual budget. Conversely, we have gleaned much greater insight and understanding of our position under E3 due to clear financial reporting within the business programme. Indeed, over the last two years, the School has seen a significant improvement in meeting its E3 financial targets. We thank the reviewers for commending the School on the progress achieved thus far in improving the overall financial position of the School.

At Faculty level, the Dean of STEM has acknowledged the challenges associated with budget distributions and forecasting and this has been added to the Faculty risk register as a common issue impacting STEM Schools. Where we can, we will make the School's voice heard with respect to the significant risks of the College's finance model for the School's core budget and its ability to maintain excellence in teaching and research. To continue our progress and very positive trajectory, we will require clear sight of our annual budget distribution and the mechanisms underpinning that from College.

2. Resources, academic, administrative and technical supports and identity

We agree with the valuable and insightful comments from the panel in relation to integration of a more School-based operational management and organisation structure, while recognising the importance of our constituent Disciplines in establishing student and staff identity. This will bring notable efficiencies for the technical and administrative staff in particular, whilst also offering a coherent structure for growth and career development. Moreover, we appreciate the feedback received directly from staff in this regard and feel that this optimisation will also improve lines of communication and processes within the School. Improving communication within and beyond the School will be a key objective of our Implementation Plan, as will the collective development of School mission and vision statements, as part of which discussions will incorporate the possible future renaming of the School. This recommendation is now underway and the School is in the process of developing a clear structure with all staff concerned. We are incredibly fortunate to have such committed



and hardworking staff who have accommodated a remarkable expansion in activities over the last number of years with almost no (or relatively little) increase in staffing. To address this, the School will work with Faculty to implement the filling of E3 academic, administrative, and technical positions, as well as replacement posts as part of a consolidated strategic staffing plan that considers and fulfils our interdisciplinary requirements.

To ensure that resources are adequately mapped going forward, the School will implement, in conjunction with its staff and with the Dean of STEM, a five-year Strategic Plan outlining our short-, medium- and long-term objectives. The School will continue to maintain a policy of building expertise and capacity from the ground up through supporting applications/training requests from talented young researchers for fellowships, early-stage academics, and professional staff. Furthermore, at College level, the School will await the outcome of a review of professional staff development and opportunities for reward and recognition led by the Director of HR and the Provost.

Finally, the School will develop comprehensive induction booklets to support incoming and current staff and students alike.

3. Undergraduate, postgraduate taught and research programmes

The panel were impressed with the excellence in teaching and research achieved in the School despite enormous resource pressures and budgetary constraints. Some issues were identified by the reviewers in relation to increasing student numbers and the limitation of state funding. Indeed, growing student numbers have put significant additional pressure on staff workloads and there is a need to find efficiencies, while also implementing additional staffing resources to support the growth. There are several considerations which the School will review:

A. Programme streamlining and teaching space improvements.

We acknowledge the reviewers' comments and note that, at both UG and PG level the School is working towards improved integration of programmes across our Disciplines. This will create some additional efficiencies. The School also agrees with the panel's assessment that the current teaching spaces are below an acceptable standard. This has been identified as a priority area internally at College level. To address this locally, the School is engaged in costing upgrades for School-managed space and will request College and Faculty support to provide the necessary infrastructural improvements.

B. Fieldtrips and capstone projects

We agree with the panel on the fundamental importance of maintaining our high-quality fieldtrips as part of our taught programmes. These are a critical component of our teaching. However, cost pressures, and lack of budgetary clarity (as outlined above) has led inevitably



to scrutiny of field course budgets. To address this, we will seek further clarity from College and Faculty on budget distributions to improve the quality and efficiency of our fieldtrip offerings, relative to available funds. We also agree with the panel that project supervision represents a particular pinch point on our resources. The School has begun the process of reviewing the project distribution model towards developing a more efficient and equitable approach commensurate with increased student numbers. Adoption of a new supervisory model for MSc and final year capstone project supervision will be implemented with a view to further harmonising supervisory loads across the School.

C. PhD Renewal Programme, communication and student inductions

We would like to thank the students for providing very useful and important feedback to the panel. Indeed, the School is progressing with the ongoing implementation of the PhD Renewal Programme and expect that this will provide additional supports and streamlined processes for students going forward. A key objective here will be to improve communication for students and ensure that there are clear and explicit processes for students within the School to raise queries. In addition to this, the School will develop induction booklets for postgraduate students which will provide greater clarity on School-based processes and relevant contacts. Furthermore, another short-term integration activity will be the establishment of a School-based research focused event for all PhD students and postdoctoral researchers across the School. The School acknowledges and agrees with the reviewers that there is potential for further complementary synergies between the our four constituent disciplines towards the development of streamlined School-wide policies and procedures for research students.

4. Research activities, research infrastructure and centres

The reviewers highlighted that the School is performing extremely well in research, with some impressive facilities and excellent recent grant successes, and the excellent work undertaken by the Director of Research in mapping current research strengths. We agree that it is a reasonable aspiration for the Disciplines in the School to aim for a global top 100 ranking but note that this activity faces the perennial challenges of continued securing of funding for individual PIs, as well as maintaining and developing essential key infrastructure and space. The School is aware that maintaining a track record of substantial funding will depend on strategic recruitment as well as supporting talented young researchers and the development of a comprehensive forward-facing school research strategy that squares the circle of being inclusive, providing focus and supporting prioritisation of scarce resources. This will be a focus area for the School as part of the Implementation Plan. However, a key aspect of this is the maintenance and development of our research infrastructures. At present, there are no or minimal contingency funds to maintain and replace vital laboratory space and equipment. Moreover, the portion of overheads received by the School is reduced significantly following College-level deductions and this massively inhibits our ability to maintain local



infrastructures. This is a significant risk that requires Faculty and College engagement. At School level, we will design an updated research overheads policy to facilitate greater transparency and oversight of our research support funds.

We thank the panel for noting that the Centre for the Environment is an example of best practice, albeit with aging equipment, and that Trinity East represents a key area for future development of research infrastructure within the School. We agree that a more central governance structure of all research infrastructure within the School would provide greater capacity for management and prioritisation in a resource-constrained environment. It should be noted that the resource requirement is not only infrastructural, as staff and academics are often required to run and maintain these centres. This can, in turn, impact on teaching capacities within the School, as some academic staff may be seconded to these Centres. In some cases, funds will be made available to the School to support temporary teaching cover. This is critical to maintain our activities. Indeed, since the time of the review, a newly awarded SFI Co Centre for Climate+ Biodiversity and Water has been initiated within the School and this will enhance further the reputation, capacity, and research outputs not only of the School, but also TCD. This will, however, also result in a loss of teaching by a highly sought after Professor with no teaching cover funds currently provided by College. To address this, additional resource support from College will be requested to begin this centralisation process and ensure that our teaching programmes are not impacted by the temporary loss of a distinguished Professor.

We agree that the mix of Disciplines in the School mean that we are well-placed to win significant research funds and make major contributions around interdisciplinary responses to global grand challenges if we can attract and maintain excellent talent and infrastructures. The ability of the School to support cutting-edge infrastructures and facilities is key to obtaining external funding from national and international funding bodies. As these facilities are supported entirely by School resources, the reviewers correctly identify that this is a significant resourcing issue going forward. This not only affects existing facilities but also any capacity to develop new or additional facilities.

5. Collections

We agree with the panel in relation to our responsibility to consider carefully the purpose and function of our zoological, geological and botanical collections which are of significant national and international importance and recognised as unique and irreplaceable. The collections are currently maintained in separate locations, and we agree that the associated staffing and general resourcing of the different elements are far below the levels that might be expected for such significant materials. Any future plan in this regard will require additional support from College. To address this, the School have begun discussions on the potential centralisation of the collections and we are liaising with the Commercial Revenue Unit and



Bursar towards developing a roadmap for a potential School Collection (incorporating material and input from each of our constituent Disciplines). To maintain and develop such a collection, the School will need to ensure that a curator and building attendant could be sourced, as the School has no current way of supporting such roles given the challenging funding environment.

Conclusion:

In conclusion, we would again like to thank the Reviewers sincerely for their time, expertise, and valuable commentary with respect to our School. We agree fully that moving forward, openness to adaptation and change at all levels will be imperative to sustain and enhance the quality of teaching and research within the School.

The School management team and staff are committed in our efforts to navigate the challenges identified towards the continued success of the School of Natural Sciences. We will focus on implementing the panel recommendations and, in so doing, we hope that the School can maintain excellence in teaching and research as its primary mission and, importantly, provide a positive and inclusive working environment for students and staff alike.

Professor Ian Donohue
Head of the School of Natural Sciences
Date: 20th May 2024



MEABHRÁN / MEMO

Chuig / To: Quality Office

Ó / From: Professor Sylvia Draper; Dean of Faculty of Science,
Technology, Engineering and Mathematics

Dáta / Date: 17th May 2024

Tagairt / Reference: Dean's Response to Quality Review:
School of Natural Sciences

First and foremost, I take this opportunity to extend my sincere thanks on behalf of the Faculty, to the members of the expert review panel (Professor Martin Evans, Professor Susan Owens and Prof Owen Petchey), the internal facilitator (Professor Alan O'Connell) and the Pro-VP (Professor Brian O'Connell). I valued my face-to-face meetings with the entire review team which book-ended the review process.

The panel undertook a comprehensive review of the School of Natural Sciences, meeting all the relevant stakeholders (7th -9th Feb 2024 inc.) and provided a carefully considered and timely report. This contains a set of insightful observations and proposals for future strategic directions of the School as well as recommendations that might best support the school in prioritising and capitalising on **interdisciplinary and cross-school opportunities for collaboration**.

The report recognises the dedication and commitment of all the staff (academic and professional) and acknowledges the work they undertake on a daily basis to deliver a quality learning experience for their students. It highlights the fact that despite the demands arising from responding to increasing numbers of students and modules, staff in the school have retained an international research profile that the reviewers report 'stands out for its excellence' and demonstrates 'a wealth of high-quality, societally relevant interdisciplinary research'. In terms of research, the reviewers intimate that **the School should set a top 100 QS world-ranking in its sights, as its staff are 'very well placed to win significant funds and make major contributions around interdisciplinary responses to global grand challenges'**.

A recurring theme throughout the report is that while the reviewers recognise the importance of the disciplines in establishing student and staff identity, they strongly advise that the organisational structures and decision-making (as they affect the distribution of technical, administrative and other resources) **transition to a more efficient and centralised school model**.



Similarly whilst acknowledging that the consequences of student growth outpacing additional resources has been compounded by E3, and is a conundrum at School and Faculty level (with the BPA budget based on activity in the previous year), the report identifies perceived disciplinary differences in terms of their impact.

Along with specific recommendations for the School, the reviewers identified some more universal areas of challenge that are being tackled at College Level through

- (i) revision of the role of the Space Allocation Group and the development of a College-wide space strategy by the Bursar.
- (ii) review of professional staff development and opportunities for reward and recognition led by the Director of HR and the Provost.
- (iii) developing an understanding of the outcomes and the consequences arising, from the implementation of the new Budgetary Planning and Allocation (BPA) model.

Areas of attention that are more readily addressed at Faculty level are those that interconnect with E3 such as (i) the filling of E3 academic and technical positions (within the School of Natural Science) and replacement posts within an integrated strategic staffing plan. This should better target inter-disciplinary needs and help to address what are described as **'polarised disciplinary views' on the E3 project as a whole** (ii) the creation and development of an E3LF Operation's Team to support the transition of teaching into the building (from Jan 2025).

Some of the issues identified in the review were not unique to the School. These included the late and revised allocation of 23/24 budgets to STEM schools (due to exceptional staff shortages), concerns around the lack of provision for the maintenance and upgrade of equipment which has become a significant risk-factor for teaching and research within STEM (Faculty risk register) and the use of research funding to resource final capstone research projects which is widespread and undesirable (highlighted in the Dean's consolidated Annual Faculty Quality Report).

In conclusion, I welcome the reviewers' comments and agree with the focus and/or intent of their recommendations. I note the report refers to the reviewers' impression 'that SNS has a strong leadership group who are committed to making a success of the School and building the wider school identity.' I concur with this view and believe it is reflected in the School's self-reflection report and its response. Both show considerable maturity. I commend the School on its impressive record to date in research and teaching, its creation of attractive new PGT and UG course offerings, its high quality publications and recent large-scale funding successes. I look forward to supporting the School as it takes the steps necessary to unify its purpose and that of its disciplines, and to build on the evident dynamism of its staff who are well-placed to ensure that the school grows from strength-to-strength.