The Engineering Council's 'Guidance on Sustainability' was reviewed and PEIs were invited to comment on the proposed new version. The review was undertaken by a Working Group comprising members from several PEIs and Professional Affiliates. Please see an anonymised summary of their responses below.

Q1. The revised Sustainability Guidance includes the UN's Sustainable Development Goals, a clear definition of sustainable development and a section 'Obligations' similar to that in the EngC Whistleblowing Guidance. The target audience is the same as that for the Statement of Ethical Principles.

Does your institution have any concerns about these aspects?



### Please explain any 'yes' answers:

"The definition of sustainable development currently does not mention climate change, it is suggested this is included."

"The UK is a signatory to the UNSDGs and the Engineering Council recognises these goals but where is the link to the UK or devolved governments' policies and supporting legislation that engineers and engineering bodies are expected to work within?"

### Optional further comments:

"The role of the engineering professional includes minimisation of harm to the environment, and is stated with a request that environmental or natural capital value be maximised where possible. This is a move beyond doing less damage to one that adds value, and which requires different thinking for engineering professionals." –

"It may also be useful to suggest that where possible the use of ISO standards like 14001 that use SDgoals as their foundation are implemented in workplaces, not just considering the aspects when we work."

### "You could arguably put the link to the UN 17 goals as the first link"

"The collated response is 'No' but there is some concern that poverty is a relative rather than absolute measure and UN goals are too focussed on Human benefit and goals 13/14/15 are not enough to counter the other 14. Note the link in the document (<u>http://www.sustainabledevelopment.un.org</u>) does not resolve."

"The guidance is fine and I should point out that sustainability has been/is a core pillar of our standardisation work from an engineering industry perspective. Designers have been incorporating this ethos for a good while and you can see that in the products that are available. We are checked for many issues on development including ergonomics, end of life, environmental, safety and sustainability. Product and vehicles standards going hand in hand with legislation are checked to this criteria and you can be assured we accept the challenges whilst influencing and shaping the future. "As an Institute we should have no concerns with the principles and aspects here. As long as we retain a practical element of members who are employing common sense and diligence in the work they are doing in the industry and this correlates with the Institution we are well placed."

# Q2. There is a stronger focus on: designing in sustainability from the start, the inter-connectedness of challenges and solutions, and regeneration and restoration.

Recognising that this is guidance and its content will be interpreted and applied variously by sector or discipline, does your institution support the stronger focus?

### Does your institution support the stronger focus on the following aspects?



Please explain any 'no' answers: N/A

### Optional further comments:

PEI has been advocating assessment of the impact of project vs. the UN SDG's; and also we have plans over the next 12 months to provide information, content and debate improved systems engineering principles for our areas of impact."

"Designers should include NDT expertise to make sure inspectability is built-in at the outset. Things are often scrapped because they can't be inspected when they are past their design life."

"In agreeing support for the stronger focus on the areas listed comment was made that there is still insufficient focus and ambition in this document on instilling in our current and future engineers restoration and enrichment of the environment and to repair some of the damage already done to our eco-systems"

"The guidance recognises the globalisation opportunities for engineers to do good, but it is felt that globalisation also brings challenges from extended supply chains that are more vulnerable to disruption and also the potential for a reduction in the skills and knowledge required for understanding how to work in specific areas of specialisation or location."

Q3a. Taking a proactive role has been strengthened. Does your institution agree that engineers and technicians should be encouraged to 'be proactive, contribute and positively influence sustainability'?



## <u>If not, why not?:</u> N/A

### Optional comment:

"Our experience with mentoring prospective registrants is that they have a too-fuzzy view of how their work impacts sustainability. When discussed, many things they are doing emerge. But it's not front of mind as much as, for example, meeting technical spec. So items such as requiring specs to cover sustainability aspects, including in reviews for development projects, monitoring etc is vital in my view."

"Engineers should recognise that information about the extent and acceptability of environmental impacts, the effects of climate change, and what constitutes sustainability, will change over time. So as far as possible what they design should be adaptable and flexible, and able to be modified incrementally."

"The guidance needs to inspire engineers to make a difference through proactivity. It is felt that this need is not articulated as strongly as it should be."

"Will there be further guidance or case studies published as examples of good practice?"

Q3b. Is your institution happy with the brief addition to Principle 3?: 'be prepared to challenge the status quo'?



## <u>If not, why not?:</u> N/A

### **Optional comment:**

"Yes, it's important also for employers and Boards to encourage this, and to be seen to be doing so."

"Whilst encouraging the "challenging the status quo" is commendable, there is no support system for those who will challenge in the future (or are already challenging the status quo).

Inadvertently those that will/have challenged the status quo, particularly in engineering sectors has always been voiced by those not from core "civil streams" or those that are not the traditional representatives of civil engineers. Simply put, they are likely to be younger professionals from more diverse backgrounds and diverse disciplines, whilst the majority of those that need to be challenged will be older, more experienced civil engineers.

So perhaps an addition to this principle: Be prepared to be challenged

And a much greater degree of support to those who will challenge but are likely to then be marginalised. Professional registration: Perhaps an addition to CEng competencies under sustainability that specifically highlights "challenging sustainability status quo?"" –

"Particularly supportive of the principle of challenging the status quo, in light of the potential weakening of standards in post-Brexit trade deals." –

"This would strengthen the guidance. The idea of going beyond minimum is also a good aspiration especially where we see the advent of Minimum Viable Product (MVP) as part of our development culture." –

"The principle of challenging the status quo requires cooperation and approval of the client or employer who will ultimately pay for the increase in standards above the minimum required in existing law, regulation or Relevant Good Practice RGP. What governmental or Engineering Council messaging will be available to support the engineer attempting to make good on this principle?"

Q4. Does your institution agree that decision-making should seek to involve those who traditionally may not have had a voice in the development of engineering solutions?



If not, why not?: N/A

Optional comment:

"a wider selection of voices provide better solutions"

"Design of civil engineering is no longer a singular role for the designers – procurement and purchasing are key. Whilst the supply chain is mentioned in terms of "adopt life cycle assessment as normal practice, including in the supply chain, to quantify the environmental implications of projects" it does not dictate a preference.

Therefore, a stronger emphasis on changing resources to those that are more sustainable and ingraining the same principles within procurement, and selectively seeking. Prioritising alliances those with similar principles, and a proven track record (to prevent green washing).

There is also little in terms of upskilling the supply chain or providing the supply chain guidance of what "sustainability" credentials the engineering sector is seeking – again an attempt to steer away from green washing.

Whilst the principles encourage the use of circular economy etc, it doesn't specifically mention upskilling or training in these fields. Whilst projects employ specialists to undertake such work, it would be beneficial if the core team of engineers were themselves somewhat more upskilled in these areas. The intention is not to ask the engineers to change their core skills, but rather have an understanding of more sustainable practices, so that when the specialists or others "challenge the status quo" it is less of an uphill battle.

There is no mention of responsible sourcing. Whilst circular economy is featured and overlaps with responsible/ethical sourcing, it is a different topic – and one that has extensive connotation in terms of SDGs, particular in terms of water (if raw materials with high embodied water (eg concrete or timber) are sourced from regions with water scarcity, ultimately the project is not one that is sustainable as SDG6 is not being adhered to, even if the aim of the project may ironically be eg water treatment)" –

"This is a question of stakeholder management ensuring all parties affected by the engineering solution are consulted as part of the solution design and development. Comment was also made applauding the intent and meaning of these six principles but saying that many do not read as 'principles'; particularly principle 3."

"It would be useful if examples of such voices were given. Who does the Engineering Council have in mind here - is it the public or those who will use, operate, work in the affected environment."



Q5. Are you happy that 'learning from past mistakes' is expressed as being a part of the engineering process in Principle 2?

### If not, why not?:

"This is a 'soft' no: I prefer language that encourages reflecting on past experiences, including where things did not go well... A related question in gate reviews can be: what is being done differently this time as a result of reflection on past project experiences?" "Lesson learnt are not just from past mistakes. Sometimes they are learnt anyway. Question 5 though is too coarse with 'learning from past mistakes'. Albeit we all probably do this, I would prefer this to say something like 'building on original methodology/concepts and finding a way ahead using experiences gained'"

## Optional comment:

"It is considered that the ability to identify lessons learnt should be part of the overall assessment and continual improvement is particularly important in this area."

"As a highly-regulated sector, learning lessons from past mistakes, be they recent or historic, is an essential part of explosives engineering practice. Citing relevant incidents in a submission supports arguments for good, lawful practice in the face of arguments to cut costs."

# Q6. The content under Principle 4 has been made clearer with respect to the whole life cycle (in the introduction), circularity (circular economy) and safe disposal.



Does your institution endorse these revisions?

### <u>lf not, why not?:</u> N/A

## **Optional comment:**

"In Principle 4 it would be useful to stress that the elimination of building anything is of far greater benefit than using resources efficiently, for example when considering temporary works and the benefits of off-site manufacture."

"We wonder whether there is something missing around the financial justification of projects, ensuring that there is a suitable method used to include the long term financial return from a sustainable project proposal" –

"The guidance mentions risk reductions to the environment social etc.

'Environmental guidelines' may be viewed as minimum requirements to ensure no damage is inflicted to the environment, economy or social alliances, and more over to ensure that construction projects/team are not fined for breaching the law (eg pollution prevention, destruction of protected species such as newts'. (Eg Water Industry Act states that you must replace 'like for like' in terms of tree removal. Yet planting a sapling to replace the removal of a large Oak tree, is not sensible. Yet that is the law).

However Sustainability is not about risk reduction- it is about improving the environment and leaving it in a better state than originally found and increasing future resilience.

In order to 'be proactive, contribute and positively influence sustainability'? perhaps the definition of sustainability needs to be revisited. "

"The approach for whole lifecycle fits well to the concept of Total Cost Of Ownership (TCO) but "Safe disposal" needs to address the whole eco-system not just being safe for humans. Care needs to be taken not to focus solely on the economy."

"It can be tough to comply fully in the early years though"

Q7. Does your institution have resources (case studies, webinars, etc) to support engineers and technicians about sustainability that it is able and willing to share, for EngC to signpost to?



### Please provide a brief description and/or a link:

"Our webinar hub gives links to all webinars and podcasts, many of which are on these subjects

https://www.imeche.org/webinar-hub" – IMechE

"We may have a case study from a candidate working in sustainable engineering, but are not able to provide that yet." – *IET* 

"Nothing on 'sustainability' as specifically defined by this guidance, however IIOM considers obsolescence management (OM) and anti-counterfeit capabilities to be enablers of sustainability. IIOM provides extensive resources to members in support of their IPD and CPD. IIOM members play an active role as convenors and members of international standards bodies relevant to sustainability and OM and these standards are readily available. There is also a substantial body of academic and industrial research on these topics which cover technical, business, and economic aspects." – International Institute of Obsolescence Management

"CIWEM produces a variety of policy position statements and reports that may be relevant in supporting engineers and technicians about sustainability, these can all be freely accessed via the CIWEM website: https://www.ciwem.org/policy/" – The Chartered Institution of Water and Environmental Management

### Opportunity to make any further comments:

"We will share when we do build up resources on sustainability" – Chartered Institution of Civil Engineering Surveyors

"Wish we did - I'll take this as an action!" - Royal Institute of Navigation

"Unfortunately BINDT does not have any case studies." - The British Institute of NDT

### "I look forward to seeing other institutions' examples so that we can take up the cause." – IExpE

"Comments on Guidance on Engineering draft:

- There is a concern that the draft document does not directly address safety and its relationship with sustainability. More broadly, there is a concern that the Engineering Council needs to take an overall view of key requirements such as sustainability, safety, ethics and diversity and provide guidance on how to deal with the inevitable situations where trade offs are to be made.
- Similarly, there is a need to consider sustainability in a 'real world' context where there will a
  requirement to take account of commercial factors such as profitability, affordability and business
  growth. There is a link in the document which makes mention of economic factors, but it does not really
  address the full range of commercial aspects."

"The following comments were provided by industry leaders:

### Member 1

Personally I do not think many engineers will pay heed to it. [In my previous role in rail infrastructure] we were looking at more sustainable engineering as part of a broader through-life engineering activity and the engineering restructuring that brought the different engineering groups together is an attempt to cover aspects of it especially the recycle-reuse initiative.

Engineers are also beholden to cost pressures and unless the requirements for sustainability are written into contracts and more importantly design and operation aspects, then most will be ignored. For the principles themselves:

1. A bit ambitious and not normally within the Engineers remit.

- 2. Agree with this.
- 3. Agree with this.

4. My view is this is not strong enough and should be more around lifecycle management or "design for life" approach that assesses the parts ability to support the life of the equipment/system including interchangeability/upgradeability with the ability to be recyclable (in essence not accepting a product that once broken can only go to landfill.

5. A bit ambitious and not normally within the engineer's remit, unless this is written into the requirements.

6. I can't see this happening in the way they might hope. [In my current role in civil nuclear] all of the projects I have been involved in including new builds have never done all of the bullet points. The only ones close to that I have seen aspects of this are Hinkley Point C and Sizewell C and that is only because of the massive oversight (WANO, ONR, EA, Gov, IAEA) and real risk of project shutdown if not done right. It doesn't read as a guidance rather than a best endeavours. To me the approach should have been around holistic engineering with the emphasis on responsibilities to sustainability.

#### Member 2

I think the document whilst well written and easy to read is "pretty lightweight" in giving good advice to engineers. For me as a non-engineer I think the guidance tries to cover such a wide ranging topic but only skims the surface of what sustainability really means. The document does not seriously look at through-life aspects at all.

If the objective was to increase awareness of sustainability then the document is successful, if the objective was to offer useful guidance then in my opinion it is not!

I believe another couple of pages of substance would vastly increase the value of such a document.

#### Member 3

It's hard to disagree with anything in the guidance but you have to make a big mental leap to realise that engineering companies, and therefore the engineers within them, currently produce products that only last two - five years and can't be repaired. The emphasis seems to be on considering sustainability during the design **Commented [SO1]:** How would we approach this? It mentions the names of the institutions, but this is necessary in order to answer the question. Should this whole section be removed?

phase, and not through-life services (particularly in section 6). Section 4 says life-cycle assessment should take account of environment, but that doesn't feel enough.

Should it explicitly reference obsolescence management – I am not sure, but it seems happy to use sustainable as a buzzword not linked to reality e.g. "sustainable engineering practice"

The questionnaire seems to be guaranteed to give yes answers, who would answer no to any of the questions?"

## Q8. Was this consultation easy to read and understand?



If not: why not?

"the document could be improved by providing a clearer definition of sustainability in the introduction."