SDG Annual Report, 2017

The Sustainable Development Group objectives include:

- increase the awareness of the benefits for life-cycle thinking (LCT) in the design of new products and processes;
- identify and support opportunities for collaboration on sustainability between IOM3 Committees;
- develop strong links with other professional bodies, and with National, European, and International projects;
- provide a body of expertise to respond to requests to the Institute for opinions on sustainable development;
- support the Institute in representations to National and European Government agencies on environmental issues relevant to the industrial interests of the materials, minerals and mining sectors.
- maintain a source of information to the Institute and its members on current issues for sustainable development and related topics.

The Group has advised IOM3 on a Sustainability policy and this has been approved by Council.

Summary of Activities in 2017

External activity highlights: SDG members are involved in a wide range of external activities relating to the individual areas of sustainability expertise. At each SDG meeting these are presented and discussed in a round table. The highlights below are a small sample of where IOM3 SDG members have been recognised externally for their expertise in 2017:

2) A new ISO standard on the Life-Cycle Inventory (LCI) of Steel Products. Now at DIS stage (DIS ISO 20915 with voting in March 2018).
3) Response to UK Industrial Strategy consultation paper (SDG and contribution to IOM3 response)
4) The Product Environmental Footprint (PEF) pilot studies for European Products
5) UK Industrial Strategy Fund workshops, various, 2017
7) EMAS, Best Environmental Management Practice Guidance for Fabricated Metals Industries
8) Sustainability and LCA Workshop, International Centre for Advanced Materials, Manchester
9) Presentation on Circular Economy, October, Kyoto, Japan.
10) Presentation in Brussels, October, Industry 4.0, Critical Materials Report
11) Paper and presentation at EMECR2017, October, Kobe, Japan

Internal activities within IOM3, including contributions to the ITPB and work with other Divisions and Societies (for example, MSTD, EMG, Polymer Society, Natural Materials Group). Highlights include:

1) Conference Series planning: Materials Protecting Society (MPS). An ITPB initiative to hold five one day events beginning 2017, planned at Euston Road. Topics include Protecting People, Protecting the Environment, Resilient Infrastructure and Protecting the Future. The initiative was very much aligned to the 2017 SDG annual plans (see 2016 report, formerly called the Great Materials Debate: Materials and Society Programme) and the SDG has actively participated in the MPS launch event with the SDG Chairman, Louis Brimacombe presenting on ‘Thinking Life Cycle in a Circular Economy’.
2) Following the MPS launch event, the SDG has lead and organised the second event in the MPS Series, Materials Protecting the Environment (MPE) to be held on February 21st, 2018. Most SDG members have been active in supporting this and have participated in 3 organising committee calls in 2017.
3) Stuart Patrick presented on behalf of the SDG at the Sustainable Materials Group (a trade body set up by Artis) launch event held at IOM3 on 18 January 2017.

SDG Board Meetings - 2017

Note that full board membership (with leavers and newcomers) was assumed to be 20 members in 2017.

15th February at IOM3, Euston Road – 12 members present (60 % of Board membership)

Included presentation from Emma Wilcox, CEO of the Society for the Environment

8th June at IOM3, Euston Road – 15 members present (75 %)

Presentation from Dr Nick Coleman, Tata Steel: LCA and Sustainability Assessment Methods

29th November at IOM3, Euston Road – 11 members present and 1 guest (55 %)

Presentation from Chris Norris, Artis – The Challenge of Tyre Recycling

Over the year, attendance levels at Board meetings were generally better than 2016 (63% on average). Numbers in November were lower than expected, due to members’ changing commitments.

Board Membership, End of 2017 (Current membership is 21 plus 2 vacancies)

Tamara Alliot Minor Metals Trade Association
Keith Barnes Packaging Society
Dr Gawen Jenkin IMMA and Mineral Processing &Extractive Metallurgy Board
Louis Brimacombe (Chairman) Formerly Tata Steel, now independent
Andrew Clifton Rolls-Royce, and ADS (the premier trade organisation advancing the UK Aerospace, Defence, Security and Space industries)
Nick Coleman Tata Steel, HSE Group (joined June 2017)
Jim Coulson TFT Woodexperts Ltd, Wood Technology Society
Andrew Dunster BRE, Cementitious Materials Committee
James Goddin Granta Design, Construction Materials Group
David Harding-Brown 1HQ Design and Branding Agency, Packaging Society
Ian Warrington (Meeting Facilitator and IOM3 Liaison from June 17) IOM3
Anthony Hartwell Sustainable Materials Engineering Ltd, Formerly KTN
(Richard Murphy) Proposed member, University of Surrey
Vacancy KTN Ltd (vacancy created from Catherine Jose leaving)
Mark Jolly (Deputy Chair) Cranfield University, Light Metals Division Board, Chair MSTD
Alan Maries Society for Chemical Industry
Allan Matthews University of Manchester, Surface Engineering Division Board
Sophie Parsons SDG Secretary, University of Bath
Membership Changes

Sophie Parsons has taken over as the new secretary from Geoff Hale. The SDG thanked Geoff for his excellent support in the June 17 meeting. The Group welcomes to Ian Warrington as the IOM3 liaison. Dave Jesson and Catherine Jose stepped down from the SDG Board in 2017. The Board wants to thank both for their contribution. This leaves a vacancy for a Surrey University representative and a KTN representative in 2018.

General Matters, Activities and Contributions

The chairman of the SDG, Louis Brimacombe, has taken on the role of Visiting Fellow at Sheffield University, and delivered his in augural lecture in January 2017. At this he described how the United Nations launched their 17 Sustainable Development Goals in September 2015. Momentum to make progress towards the 2030 targets is being maintained notwithstanding a background of global political upheaval (Trump and Brexit). The IOM3 community is becoming increasingly aware that understanding sustainability across the supply chain, from the mining of raw materials through to product design, usage and end-of-life considerations needs to be better understood and the wider social, economic and environmental benefits need to be taken into account across the whole product life cycle. Raising educational and professional awareness of this is the central role of the SDG as is the pursuit of innovation, excellence and technically robust solutions.

Environmental issues related to materials have become more prominent in 2017 (plastic in the oceans, waste recycling, packaging waste, urban air quality, electric cars and vehicles, climate change impacts such as extreme weather events, flooding, water scarcity, etc). Sustainability methodologies are still in their development and SDG members are involved in a range of activities, including those listed in the summary above. It is critical that materials interests and IOM3 are well represented and to this end, the SDG believe that that the Institute should maintain a position of leadership in this area. A key activity in 2018 towards showcasing this leadership will be the MPE event to be held in February 2018. A further development could be to participate in LCA training seminars associated with IOM3 such as that delivered in 2017 at the International Centre for Advanced Materials at the University of Manchester.

Stuart Patrick has made good progress as webmaster for the SDG and has taken action to improve the contents of the microsite and to regularly update the site with members’ contributions. Stuart will need the support of the group to enable further improvements in 2018.

The need for an SDG newsletter has been discussed and the group decided instead to develop an SDG news blog possibly using the Linked In platform as a more modern means of communicating news and discussion, this will be trialled in 2018.

SDG members have expressed their views and concerns about the rationale of Brexit and the new Trump administration/presidency in terms of what this would mean for sustainable development in a global, European and UK context. Sophie Parsons produced an article for the IOM3 website and MW which set out the position and proposed that IOM3 show leadership in these times.

Mark Jolly had a letter publicised in the FT which explained the importance of life cycle thinking in the assessment of environmental benefits of materials selection for engine castings. In this he recommended
that LCA be used with rational, rigorous and practical assumptions including regional data variations (such as manufacturing data from China). This was the essence of his paper presented at the International Vienna Motor Symposium 2017.

**Andrew Dunster** has been awarded the position of Visiting Professor (Construction Materials) at Coventry University, based in the Centre for Built and Natural Environment (awarded August 2017).

**Materials World**

With three SDG related articles in 2016 no further articles were submitted for 2017. There was mention of the SDG in Amber Trower’s article on the highlights of the MPS launch event held in September 2017.

**Alan Maries** contributed to Kathryn Allen’s article “Cement examined as a carbon sink” in the January 2017 issue of Materials World.

### Activities/Plans 2018-2020

The future plans of the SDG at this stage are based around specific events that the SDG will develop and those which will be collaborative across other IOM3 Divisions/ Societies.

The list of potential future SDG activities is as follows:

**Materials Protecting the Environment Event, 21st February 2018 at IOM3.**

**Development of LCA training programmes, aimed at both industry and academia.**

**SDG support to Materials Protecting Society Programme.**

Develop programmes for three 1 or ½ day workshops to be held at IOM3 in 2018/19 on the contribution of materials towards a) **resilient infrastructure**, b) **protecting people** and the c) **the future challenges**. Sub topics would include the role of materials in protecting from terrorism, natural disasters, climate change and the ageing population. The SDG will continue to consider the role of technology, advanced materials, big data, internet of things, advanced materials and manufacturing toward providing solutions to the UNs Sustainable Development Goals.

The SDG will support IOM3 in communicating their contribution to sustainability across all divisions and societies, particularly the SDG will propose a **Sustainability Workshop** at the IOM3 150th anniversary event in 2019. Other collaborations could include contribution to:

- Polymers/ Plastics meetings (Including PVC 2020 Conference)
- Responsible Sourcing/ Sustainable Manufacturing
- Construction Materials and the Circular Economy
- Practical Guidance on the Role of Materials in the Circular Economy
- Low carbon lifestyles in the 21st century

**Development of a Prize/Award for Excellence in Sustainability and Life Cycle Assessment**

Aimed at Under-graduates/ PhDs. Need to develop concept and potential sponsorship in 2018.

**Run a pilot to assess the potential for an SDG blog (instead of a conventional newsletter).** Engage the IOM3 community and potential external contributions. Review by end 2018.