# Repurposing business around the meeting of human needs

**Dr Mark Everard** debates how consideration of the SDGs in the product life cycle of PVC can ultimately positively impact on global wellbeing.

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FEATURE

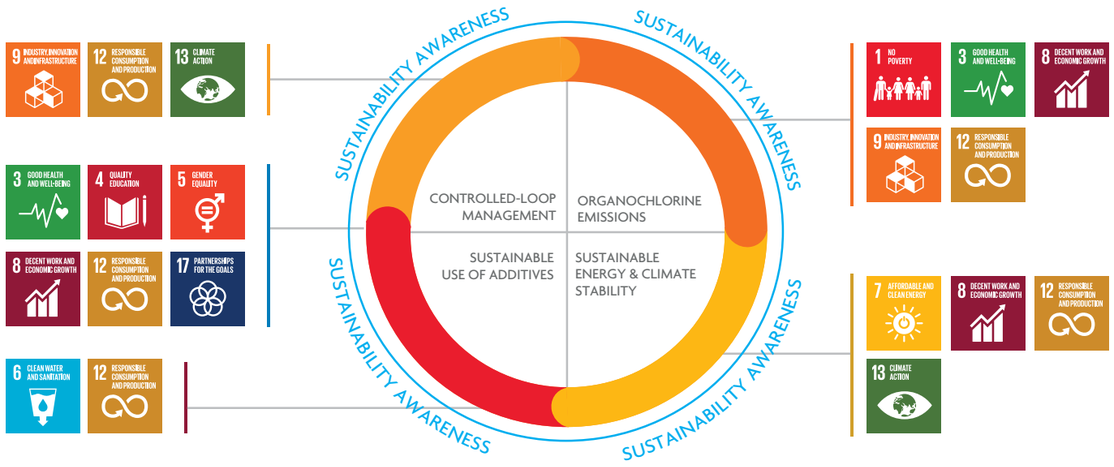
The polyvinyl chloride (PVC) macromolecule, discovered in the nineteenth century and first patented in Germany in 1913, found early uses in the United States as a rubber replacement and, during the Second World War, as insulation for wires on ships. Largely due to its adaptability, low cost, chemical resistance, durability, processability and inherent recyclability, PVC plastic (also known as vinyl) is today the third largest-selling plastic globally after polyethylene and polypropylene. However, in the 1990s the PVC industry did not enjoy the greatest environmental reputation, in part due to what in hindsight were lax practices, but also related to its association with chlorine chemistry.

In a tale told elsewhere, the UK PVC industry came to recognise that sustainable development – linking social and environmental with economic progress – was fundamental to the survival of a business sector under intense non-governmental organisation (NGO) and media pressure. The Natural Step (TNS), a science-based sustainable development NGO, was asked to address the current state of sustainability of the industry and its products, and the steps necessary to engage seriously with sustainable development. A report published in 2000 summarised five TNS sustainability challenges for the PVC industry (see **Box 1**).

**BOX 1: THE FIVE TNS SUSTAINABLE DEVELOPMENT CHALLENGES FOR THE PVC INDUSTRY**

1. The industry should commit itself long term to becoming carbon-neutral.
2. The industry should commit itself long term to a controlled-loop system of PVC waste.
3. The industry should commit itself long term to ensuring that releases of persistent organic compounds from the whole life cycle do not result in systemic increases in concentration in nature.
4. The industry should review the use of all additives consistent with attaining full sustainability, and especially commit to phasing out long term substances that can accumulate in nature or where there is reasonable doubt regarding toxic effects.
5. The industry should commit to the raising of awareness about sustainable development across the industry, and the inclusion of all participants in its achievement.

To cut a very long story short, these five challenges were accepted and actively engaged with by those pioneering industry players. They have subsequently progressed to underpin today's VinylPlus®[1] voluntary commitment amongst the entire PVC industry (**Figure 1**), including its suppliers, at European Union (EU)-28 level.




▲ **Figure 1. The five commitments of VinylPlus®. (Source: VinylPlus Progress Report[2])**

## THE SHIFTING SUSTAINABLE DEVELOPMENT NARRATIVE

The Brundtland Commission's 1987 framing of sustainable development embodied a powerful intergenerational commitment to the meeting of human needs. However, its subsequent embedding in regulation and chemical sector management tools has fallen well short of this ideal. Life Cycle Assessment (LCA) and Environmental Product Declarations (EPD) tools, and regulations such as the EU's Registration Evaluation Authorisation and Restriction of Chemicals (REACH), tend to focus on adverse impacts. In essence, the focus is on how 'bad' chemicals may be for the environment and human health. Furthermore, impact is often simplistically addressed as potential hazard rather than risk, taking account of exposure and stewardship. Though it remains important to understand and reduce such negative impacts, the focus on meeting human needs has been lost in transposition.

The study of human needs has a long history. The work of Abram Maslow, recognising a 'hierarchy of needs'[3,4], was seminal. Manfred Max-Neef and colleagues took a less hierarchical view of an otherwise broadly similar set of needs, adding to this that a range of 'satisfiers' (physical things, settings, qualities and actions) was equally necessary to fulfil them[5]. In essence, 'stuff' is necessary to satisfy human needs, such as a roof for shelter and pipes for the conveyance of clean water and sanitation.

It is here that the United Nation's (UN) 17 Sustainable Development Goals (SDGs, or Goals) make a welcome addition to limitations in what had become a limited but widely accepted sustainable development narrative, redirecting the primary focus to meeting diverse human needs. The debate then turns to how can these needs be met with appropriate 'satisfiers' on a sustainable basis.

## SYSTEMIC UNDERSTANDING

The SDGs have to be understood in a systemic context. This entails addressing all Goals as an inherently interconnected set, rather than 'cherry picking' a favoured subset. It also involves ensuring that development works for all people; as the UN Development Programme (UNDP) describes it "Meeting citizens' aspirations for peace, prosperity, and wellbeing, and to preserve our planet"[6].

It could be easy for a company, value chain or other institution to fall into the trap of selecting just a few Goals; a 'siloed' approach that rather misses their systemic framing. For their effective implementation, but also as a spur to innovation, it is important that all the SDGs are considered as an interconnected and intimately interdependent suite. Major opportunities arise from addressing them thus in an integrated way.

## PVC, PIPES, EQUALITY AND IMPROVING WELLBEING

To illustrate the importance and potential benefits of a systemic approach for society as a whole, and in this case, also the PVC value chain, we can look at an example; PVC pipes (**Figure 2**). We can simplify the argument for the product by addressing high-level Goals rather their subsidiary sub-targets.





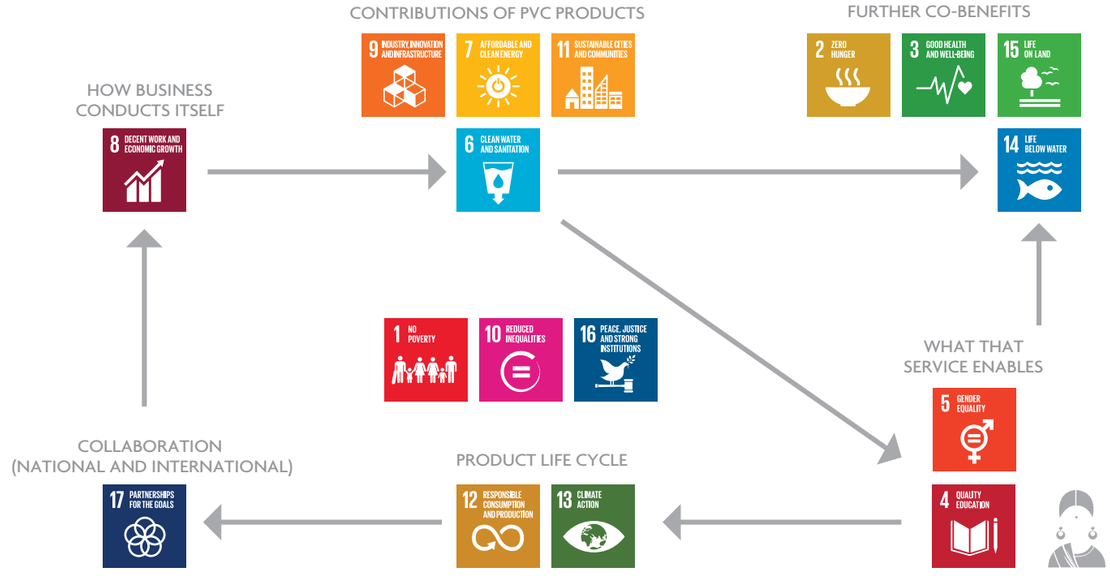
It should be taken as axiomatic that responsible businesses will have strong regard to Goal 8 (Decent Work and Economic Growth). However, as a purpose (providing satisfiers of human needs), the adaptable, flexible, cheap, durable and inherent recyclable properties of PVC suit it well to the provision of piped water and sanitation, underpinning aspects of Goal 6 (Clean Water and Sanitation). PVC can also play important roles in Goal 7 (Affordable and Clean Energy) and Goal 9 (Industry, Innovation and Infrastructure) and other contributions to Goal 11 (Sustainable Cities and Communities), but we will focus just on the role of PVC pipes here.

In developing countries in particular, greater efficiencies in the handling of water can massively reduce the drudgery of women: the traditional primary natural resource stewards who might spend 6-7 hours a day fetching water of dubious quality, often gathered at great personal risk. Piped water solutions not only create a more readily available and safe source, but are a major contributor to Goal 5 (Gender Equality). If women are freed from the drudgery of daily water collection, this liberates them to contribute to productive enterprises, such as engagement in community governance, traditional medicine and education (Goal 4). Other benefits from a stable and safe water supply include improved food productivity (Goal 2 – Zero Hunger), promoting Goal 3 (Good Health and Wellbeing), and lifting the pressure on terrestrial and aquatic ecosystems (Goal 15 – Life on Land and Goal 14 – Life Below Water).

When industry takes responsibility for product life cycles, particularly the TNS/VinylPlus challenge of controlled loop recycling, it makes strong contributions to Goal 12 (Responsible Consumption and Production) and Goal 13 (Climate Action), also noting that PVC pipes already have a lower embedded carbon content than other pipe materials due to their chlorine content. International collaboration in the PVC value chain can also contribute to Goal 17 (Partnerships for the Goals) and reinforce business commitments under Goal 8 (Decent Work and Economic Growth).

Whilst PVC pipes themselves do not directly contribute to Goal 1 (No Poverty), Goal 10 (Reduced Inequalities) and Goal 16 (Peace, Justice and Strong Institutions), they certainly play supporting roles in making them more achievable.

There is, in essence, a spectrum of direct, indirect and supporting roles that this industry and material sector example can make to addressing all of the SDGs as a connected set. Some contributions may be self-beneficial in identifying new profitable markets serving consensual needs. The same principle of systemic vision, engagement, differential contributions and potential opportunities




▲ **Figure 2. Considering the SDGs systemically, using the example of PVC pipes.**


across the seventeen Goals applies to all other businesses, and indeed societal sectors.

## REPURPOSING BUSINESS

Why do we have businesses at all? Business emerged from the Industrial Revolution as a model for converting raw resources into useful products to meet human needs. The unprecedented wealth this generated engendered a golden age of philanthropy during which captains of industry reinvested a proportion of their unprecedented personal wealth in public 'goods', such as libraries, civic parks, hospitals, schools and museums. Business subsequently lost its way by the 1980s, with competitive profit-taking and a 'greed is good' ethos often framed as a sole goal at any wider cost. Since that nadir, a journey back to primary purpose can be discerned in emerging recognition of the need for a 'triple bottom line' sustainable pathway of development, corporate social responsibility and other initiatives. Leading enterprises grasped social and environmental responsibilities as a differentiator, averting bad press and supply chain instability, promoting preferred supplier status and giving confidence to staff and investors. A further incentive today is that, in the internet age, disclosure of bad practice is only two clicks of a mouse away.

What the SDGs bring to this repurposing of business is explicit recognition of the spectrum of needs that business exists to serve; the 'missing half' of the sustainable development narrative. Yes, business sectors have to continue addressing the challenges of becoming 'less bad' for the environment and human health, but they can also engage proactively and meaningfully with their role and primary purpose of meeting consensual human needs with appropriate 'satisfiers' on a sustainable basis.

## ENDURING AND EMERGING CHALLENGES

Factors underpinning the TNS sustainability challenges and VinylPlus commitments – carbon and climate change; controlled loop; releases of persistent substances; sustainable use of additives; and engagement of the whole societal value chain – are not likely to become redundant any time soon. Indeed, they are increasingly pressing as global population grows, becomes more clustered in urban centres and grapples with meeting its needs from a dwindling natural resource base.

The principle of meeting greater human needs with less physical resource will continue to impinge on the world and frame business opportunities that can satisfy needs efficiently. The PVC challenges remain valid for transparent progress. However, the SDGs elevate the purpose of business beyond merely being 'less bad', but rather addressing human needs in the most sustainable way.

This brings us to two questions: firstly, what other materials, if any, achieve all of these challenges throughout their societal life cycle today?; and secondly, on the 'level playing field' of scientific objectivity, what materials most optimally address the diversity of challenges entailed in satisfying human needs? For durable, long-lived applications, such as water pipes, windows, insulation and shelter, the durable, adaptable and recyclable properties of PVC might represent the most sustainable options if all other challenges are seriously engaged. For short-life applications that end up inevitably contaminated and likely to enter mixed waste streams, alternative biodegradable materials might provide better 'satisfier' products.

Audited progress made under the EU-wide VinylPlus voluntary commitment is a flagship for serious engagement with sustainable development, recognised by the UN and as an exemplar for the circular economy by the EU. Contextualising these aspirations towards sustainability within the SDGs provides the value chain with the formerly missing element, and a higher purpose, of demonstrably making optimally sustainable contributions to meeting a diversity of consensual human needs. ES

**Mark Everard** is Associate Professor of Ecosystem Services at the University of the West of England (UWE Bristol). Mark has been involved in developing the theory, communication and practical application of sustainable development since the 1970s, with particular interests in developing world issues and their relevance to common global challenges.

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