**Strategic Materials for a Low-Carbon Future: From Scarcity to Availability**
**2-3 November 2017 – Session Summary**

**Breakout 1a: Basic materials in tomorrow's climate friendly cities**

By 2050, two-thirds of the world's population will live in cities, creating pressure on urban infrastructure. What are the consequences of rapid urbanization on the demand for key material resources like cement, concrete, glass, or steel? How can cities grow sustainably into a low-carbon future, with an eye to end-of-life and change of purpose, and with minimal amounts of embedded carbon? What would low-carbon cities look like, and what is the implication for wider resource use?

Stefano D'Agostino, Divisional Director, Schneider Electric
Dabo Guan, Chair Professor in Climate Change Economics, School of International Development, University of East Anglia
Simon Ratcliffe, Infrastructure and Climate Advisor, UK Department for International Development (DfID)
Mark Swilling, Distinguished Professor of Sustainable Development, School of Public Leadership, University of Stellenbosch

Moderator: Larry Yu, Co-Founder & Managing Director, Kite Global Advisors

- In this session, Stefano posed a challenge for his industry. The demand for resources is growing by 50%, yet companies need to be mindful of their carbon footprint: so what is the cultural shift that needs to happen, and how can academia, industry, and regulation help to accelerate the shift? He sought a systemic approach encompassing: regulations and compliance, education, operational technology, materials, design and construction, and financing.
- Speakers discussed some of the issues: countries are rapidly urbanising, and growing populations in the developing world are moving into cities, which are becoming less dense - if current trends continue, the total land covered by cities amounts to 2.5 million square miles, over the most productive farms and land. At the same time, a growing middle class consumes on a par with Westerners. Meanwhile, within city governments and among architects, there is a bottleneck in capacity, skills and understanding of systems and materials.

- Some systems and technological solutions are available: 'de-densification' should be reversed, with key nodes in cities connected by transport systems. And if infrastructure was reconfigured, it could be 40-50% more efficient. Speakers also encouraged experimentation with new modes of governance, using cities as pilots.
- Even as data is collected and AI decision-making might bridge the capacity gap, disparities in wealth and access to technology need to be addressed. Speakers also discussed whether goals need to be redefined and questioned: what is the ultimate objective of urbanisation? Are people in large cities happier than those who are not? Are there alternative indicators of human progress?