

ESBN¹ Roundtable: Strategies on Reducing and Utilizing CO₂ for Cost Effective Business

Concept Note

ESBN Roundtable: Strategies on Reducing and Utilizing CO₂ for Cost Effective Business

Bangkok, Thailand

Venue: Virtually via MS Teams from UN ESCAP (3 hours 45 mins)

20 April 2021 (14:00 – 17:45)

*"What we need is not an incremental approach, but a transformational one. We need a rapid and deep change in the way we do business, how we generate power, how we build cities, how we move, and how we feed the world. If we don't urgently change our way of life, we jeopardize life itself."*²

UN Secretary General Antonio Guterres

Objective

The objective of the ESN Roundtable is to bring together and engage the textile and garment sector and the cement industry to share, discuss and further CO₂ reduction activities. The 2015 Paris Agreement united nearly 200 nations in a commitment to limit global temperature increases to between 1.5 and 2 degrees on pre-industrial levels. To meet this goal requires significant Greenhouse Gas (GHG) emissions reduction in the global economy, 45% reduction by 2030 on 2010 levels, and a net zero global economy by 2050. The Textile and Garment and Cement industries have large emissions profiles that need to rapidly decarbonize. The Roundtable will discuss the clear business imperative in reducing carbon emissions and highlight examples of how these sectors are approaching emissions reduction activities, as well as balancing the social and economic impacts of transitioning to zero carbon business, to ensure a just transition. The Roundtable will also introduce a project proposal titled "Strategies on Reducing and Utilizing CO₂ for Cost Effective Business".

¹ UN ESCAP Sustainable Business Network, <https://esbn.unescap.org>

² New York 02 December 2019, Secretary-General's remarks at opening ceremony of UN Climate Change Conference COP25 [as delivered]

Background

The Asia-Pacific region is set to play a key role in transition toward net zero emissions. Emissions reduction, a just transition and increased climate resilience will all be required to meet the Paris Agreement, but the region is faced with substantial challenges. The region contributes to over half of the world's total greenhouse gas emissions (GHGs), with six out of the ten top global emitters in the Asia-Pacific region, and it is the most vulnerable region in the world to the impacts of climate change. However, these challenges also represent a significant opportunity for regional co-operation to scale up climate action.

To accelerate the transition to clean and sustainable growth in the Asia-Pacific Region, private sector driven innovation is a necessity. Large scale industries need to reduce their formidable carbon footprints, and SMEs who are at the heart of economic activity must implement sustainable production processes that reduce the high levels of resource depletion, waste and pollution, that are currently causing irreversible environmental degradation and climate change. There is an opportunity for SMEs to be a strong part of a paradigm shift toward a carbon neutral future.

Adoption of strategies to reduce and utilize carbon emissions among existing industries is a cost-effective way toward more sustainable development. These strategies aim to reduce CO₂ emissions from point sources such as industrial processes, to prevent the release into the atmosphere. Examples include resource efficiency activities from energy efficiency, renewable energy, adopting circular economy principles; new environmentally sustainable materials and processes and the phase out of unsustainable and hazardous materials and chemicals; sustainable technologies such as machinery and processes that reduce and recycle water and chemical and minimize air pollution; and CO₂ capture and utilization innovations where captured CO₂ is converted into commercial products. These emission reduction activities by the private sector, including SMEs, have spurred the development of innovative and cost-effective actions, products, and industries while limiting emissions to the atmosphere. However, as we look to Covid-19 economic and industrial recovery with both financial and natural resources becoming even scarcer and more expensive, it is and will be increasingly difficult for the poorest and least developing countries to purchase and access resources, making it time to turn to available and innovative and implementable strategies.

Taking Action

CO₂ reduction furthers business opportunities across the cement and textile & garment sectors. The economic possibilities are immense³. Billions of tons of CO₂ can be removed from the atmosphere every year and applied in commercially successful ways. Clear opportunities for reducing emissions exist in increasing the energy efficiency of facilities and processes, shifting, where possible, to renewable energy, pursuing circularity and new business models for product longevity and reuse. For example, there are new innovative processes such as using technology that pressurizes CO₂ so that it becomes supercritical and allows dye to readily dissolve, so dyes need no chemical processing and can enter easily into fabrics. The process uses no chemicals or water, produces no wastewater, requires no drying time because the dyed fabric comes out dry, and 95 per cent of the CO₂ is recaptured and reused, so the process is a closed loop system. Because the dye is used so efficiently and there is no wastewater treatment needed, costs are reduced by 40 to 60 per cent. Additionally, the process can be employed anywhere, since it doesn't require water.

For the textile and garment sector, amid the current demand-side crisis and national lockdowns that COVID-19 has brought, industry investments in greener and cleaner production have become even more difficult as cash strapped firms focus on immediate term business survival and continuity strategies above all else. However, the current crisis also provides an opportunity for the industry to rethink the environmental weaknesses of the current supply chain model, and to step up efforts to restructure the sector in a way that gives greater value to the interdependence between social, environmental,

³ <https://www.weforum.org/agenda/2020/01/co2-as-industrial-feedstock/>

technological and economic conditions in the production sphere. This is the process of Just Transition – achieving sustainability transitions in a way that is 'just' to the workers and communities involved, ensuring that no one is left behind. As the industry works towards a sustainable recovery post-COVID-19, there is also a need to collaborate and actively shape the role that the region will play in reducing emissions in the sector and production going forward to respond to the industry 'Call to Action' for a just and resilient garment industry.⁴

Further, current private sector innovations that reduce carbon intensity also are available for heavy industry to take advantage. For example, GHG emissions associated with cement production (about 2kg of CO₂ per standard-size concrete block) can be carbon negative where more CO₂ is consumed rather than emitted during the process, allowing users to lower their carbon footprint. Thus, net carbon reductions may be achieved when the products of a given pathway replace a more carbon-intensive alternative. Concrete (including ready-mixed⁵) can now be produced by converting CO₂ emissions from power plants, cement plants, and steel mills. Also, through carbonation activation, the need for cement in concrete can be replaced in the mix with ground steel slag.⁶

Innovative solutions including those from business can transform production processes that contribute to climate change. The above examples represent the potential spark for a lower carbon, climate friendly and obtainable future via business innovations and practices. Thus, throughout the Asia-Pacific Region, SMEs as well as large industries could take advantage of this new paradigm, with co-benefits that also meet country commitments for sustainable development.

With the confluence of various technological advances and the United Nations Secretary General's call to countries to declare a state of climate emergency until carbon neutrality is reached⁷, now is the time to bring key stakeholders together to substantively reduce CO₂ for more cost-effective business.

Grappling with the challenges outlined above calls for unparalleled regional cooperation and convening power to gather governments (in this project – national, provincial and municipal government), academics, the private sector and civil society organisations. It is a call that the United Nations is well positioned to respond to, as no single government or agency has the necessary resources to address these challenges on its own.

The International Labour Organization (ILO)' project on 'Decent Work in the Garment Sector Supply Chains in Asia', implemented with financial support from the Swedish Development Agency (Sida), is enhancing the environmental sustainability of the garment sector supply-chains through gender-responsive guidance on regulatory and enforcement capacities, analysis of critical enablers and barriers to eco-innovation, and identification of markets for eco-innovation services and products.⁸

⁴ *COVID-19: Action in the Global Garment Industry* aims to catalyse action from across the global garment industry to support manufacturers to survive the economic disruption caused by the COVID-19 pandemic and to protect garment workers' income, health and employment. This global action also calls for work on sustainable systems of social protection for a more just and resilient garment industry. https://www.ilo.org/global/topics/coronavirus/sectoral/WCMS_742343/lang--en/index.htm

⁵ Ready-mixed concrete can set and harden through a carbonation process. The CO₂ curing of concrete involves reactions between calcium silicate in cement and CO₂ in the presence of water to form both calcium carbonate and calcium silicate hydrate gel <https://academic.oup.com/ce/advance-article-abstract/doi/10.1093/ce/zkz008/5487133>

⁶ <http://carbicrete.com/technology/>

⁷ "Can anybody still deny that we are facing a dramatic emergency?" Guterres said. "That is why today, I **call** on all leaders worldwide to **declare** a State of Climate Emergency in their **countries** until carbon neutrality is reached. Dec 12, 2020

⁸ https://www.ilo.org/asia/projects/WCMS_681538/lang--en/index.htm

UN ESCAP, as the regional development arm of the United Nations, is uniquely positioned to build the capacity of its member States in an integrated approach to share and promote best practices and innovations to support country Sustainable Development Goal (SDG) obligations and complementary policy development in and beyond the region. UN ESCAP brings considerable inhouse resources and will call upon its Sustainable Business Network (ESBN) to bring the private sector as well as key UN partner agencies into this technical cooperation project.

Roundtable participation

The Roundtable will see the participation of national, and local governments from targeted countries, chambers of commerce, industry associations, sustainability leaders in the apparel & fashion industry as well as the cement industry, embassies and their funding mechanisms, international organisations, non-government organisations and other key stakeholders.