NEDCCS

Natural Economic Direct Carbon Capture System

NEDCCS, the Natural Economic Direct Carbon Capture System introduced by Steel Wood Industries FZCO (Dubai Branch), is an economic climate change solution that would interest both environmentalists and non-environmentalists. The environmentalists concern will focus on saving forests across the globe from the human-induced actions for solely business purpose not taking into account the negative effects on climate change. Environmentalists qualms vary from unprecedented species-extinction resulting of habitat-trimming of natural forests worldwide, which has a major effect on our rain cycle thus water shortages, carbon capture from photosynthesis of trees synthesizing oxygen essential for life, landslides, aggressive storms droughts and floods etc.

The non-environmentalists are generally focused on profits, business oriented regardless of natural resources depletion and externalities such as air and water pollution, deforestation and its negative impacts, etc. Immediate profits are their targets regardless of modes and negative impacts on climate change and future generations to come. This short versioned "business-as usual" would cost world's economy a loss on GDP in -20% long-term for correction. The NEDCCS is a sustainable method that intersects both interests through preserving our forests and species whilst generating dual commodities for profit; panels from recycled post-consumer random-mix wood waste and carbon for trade in international trading systems.

Timber industry worldwide is facing major challenges on raw material abundance with strict deforestation legislations, specie-specific production facilities, and energy (Matthews, 2016). Britain-sized forests are being depleted annually (Mailonline, 2019) resulting in tremendous disturbances to ecosystems, air and soil quality, rain cycles, species extinctions (USEPA, 2017) etc. China ban of deforestation for commercial use raised timber prices worldwide (Bishop, 2013). Other international mills have shut down operations due to stringent policies. Some countries still bypass international regulations whilst others entertained stewardship distressing costs (Nellemann, 2012).

Panel facilities are specie-specific. Mixing species declines the mechanical properties and increases VOC's of the product (Roffael, 2006). Furthermore, the water-to-wood ratio (50-50) (Sevier, 2019) drops net-wood yield prior addition of resins to 51-53% of the virgin timber (crown and roots further reduces yield to less than 25% of original tree!) (Bowyer, 2007). Hydrocarbon or carbon fuel are used to evaporate the excess water; hence, high positive carbon footprint and costs (Campbell, n.d.).

The increased population consequently demand across the globe in the timber/lumber sector may deplete our forests in the next century if abundant post-consumer quantities are ignored (Schilthuizen, 2008). Steel Wood Industries (SWI), SDB-technology "wood type" (SWI, 2019), combines random-mix wood (100% FSC/Post-Consumer) (FSC, 2019) to generate ultra-low emission (Municipality, 2019) panels with revolutionary mechanical properties exceeding those published by major international bodies. SDB production eliminates landfill GHG's and saves equivalent "virtual trees" (Afyouni, 2019) covering the ever-growing demands.

SWI has produced a life cycle assessment, environmental product declaration EPD and greenhouse gas

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quantification in accordance to ISO 14040, ISO 14044, ISO 14025, ISO 14064 (1,2,3), ISO 14067 in line with ISO 9001:2015 for Quality Management Systems and ISO 14001 Environmental Management Systems. All the above was done to establish an understanding of the SDB technology impact on preserving forests utilizing the abundant post-consumer in every municipality worldwide. Our mission remains to change the environmental, social, economic burden to unburden on economy, industry, construction, energy, etc.

Open-LCA v.15 and Warm-v.14 (USEPA Office of Resource Conservation and Recovery, 2016) stated that wood recycling remains "theoretical" and thus SDB-case not modeled; current modelled factors as forest carbon reduction, carbon calculations for virgin production, recycling emission and landfilling factors avoided ~-1,000,000 $MTCO_2E$/annum from a 125cbm/day thus saving 1,300,000 Acres of US forests annually in our pilot production facility in Dubai (USEPA , 2019); which can extrapolate to more than -24,000,000 $MTCO_2E$/annum to a scaled facility of 3000cbm/day, where numbers vary relative to water content of post-consumer wood, ambient temperatures of around facility, product properties etc. (Afyouni, 2019). Dubai's weather advances the cradle-to-gate EPD calculations; raw material arrives 10% water content. Waste dust heat the furnace/boiler efficiently achieving net yield of 92% (saving four full trees) of timber-waste prior resin addition. SWI generates two commodities; competitively priced-SDB, and RMU-CO_2 tradable under LULUCF (Ellison, 2014).

The increase in population is currently increasing the demands on timber and panels. While "business-as-usual" mills forecast higher prices due to strict foreseen legislations on forestry, SDB remains a competitive commodity as it utilizes post-consumer residues and leftovers. In addition, society would benefit from competitive prices and more durable material especially when captured carbon enters the trade system making it a lucrative business to invite non-environmental investors to enjoy profits from dual commodities, without intending to vow for climate change.

Forestation and Afforestation remain a pillar in the global actions for climate change. Trees naturally habitat and shelter tremendous amounts of animals, plants, insects, and microorganisms etc. Photosynthesis, naturally and freely performed by trees, is a natural and effective carbon capture system which is the cheapest should the trees be left alone in the natural cycle of life. In addition, societal and instincts of all living things, including humans, favor nature and natural cycles. A hidden problem in climate change is oxygen depletion which is rarely mentioned; scientifically, planktons and forests are the "lungs of earth". Our polluted oceans and depleted forests are taking life to suffocation. The NEDCCS is the ONLY Carbon Capture system that allows for the essential synthesis of oxygen when compared to other "synthetic" carbon capture technologies. Needless to say, forests in tropical areas help induce rain from humidity formed amongst their leaves thus help initiate rain cycles to cover up the water scarcity and increased demands for agriculture and cooling. The roots of the trees help hold soil in place thus minimizing landslides and unwanted erosions.

SWI model was initiated in the "desert dunes of Dubai" to prove to the world the abundancy of raw material. The success of a model in the desert multiplies its success worldwide. SDB panels have proven excellent mechanical properties and has defied the belief that recycled material is inferior to material manufactured from the virgin form.

Post-consumer wood, abundant in municipalities worldwide, converted to SDB can protect "virtual forests". Unlike other costly carbon capture systems that remain a burden to economies on governments worldwide which is resulting in countries withdrawing or hesitant to commit to the global climate change acts and Paris Agreement, the NEDCCS would be a perfect platform to invite all nations around the globe to engage in GHG-capture technologies while providing a better life and more jobs to their citizens with an overall positive impact on their societies.

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