Africa could capture as much as 10 percent of the global green hydrogen market, helping to create up to 3.7 million jobs and adding as much as US$120 billion to the continent's gross domestic product (GDP), according to a landmark report released on the sidelines of the 2022 United Nations Climate Change Conference (COP27) currently taking place in Sharm El-Sheikh, Egypt.

Africa's plentiful solar and wind resources could be leveraged to produce 30 to 60 million tonnes per annum (mtpa) of green hydrogen by 2050, about 5 to 10 percent of global demand, according to the report, "Africa's Green Energy Revolution: Hydrogen's role in unlocking Africa's untapped renewables," produced with analytical support provided by McKinsey & Company.

An African hydrogen industry with that production capacity would likely create 1.9 to 3.7 million jobs and boost GDP by as much as US$60 to 120 billion by 2050, said the report issued jointly by Masdar and its Abu Dhabi Sustainability Week (ADSW) platform

Mohamed Jameel Al Ramahi, Masdar Chief Executive Officer, said, "This report provides a blueprint for African nations to deliver sustainable, low-carbon growth while extending energy access across the continent.

According to him, green hydrogen has the potential to reduce emissions, unlock economic opportunities, and create new and valuable jobs for countries across the Middle East and North Africa region. Masdar has long recognized green hydrogen's potential, with investments as far back as 2008.

"With several green hydrogen projects underway today around the world – including a number in Africa – we look forward to continuing to work closely with our African partners to maximize the many achievable benefits of green hydrogen highlighted in this report," he said.

Estimate show that Africa could be among the most competitive sources for green hydrogen in the world, with a cost of US$1.8 to 2.6 per kilogram (kg) in 2030, further decreasing to about US$1.2 to 1.6 per kg by 2050 as hydrogen production technology matures and renewable energy costs continue to decline.

Proximity to demand centers in Europe and Asia also optimally positions the continent to build an export-oriented hydrogen sector, the report suggests, noting African energy exports via green hydrogen and derivatives would reach 20 to 40

mtpa by 2050.

The remaining 10-20 mtpa would serve domestic hydrogen demand, helping to boost electrification of African communities and delivering other socioeconomic benefits, including a more sustainable energy grid, expanded clean energy access, and reduced reliance on fossil fuel imports.

Masdar Director of Asset Management and Technical Services, Mohammad Abdelqader El Ramahi, said: “Scaling up green hydrogen is an opportunity to not only build a robust global-export sector on the African continent, but also to accelerate the deployment of renewable energy overall. The grid-connected renewables used for green hydrogen production can feed energy into the grid to provide affordable clean energy to under-resourced areas – notably, in Sub-Saharan Africa, which has an average electrification rate of only 48 percent.”

Most African countries have a relatively low population density and non-arable land available. These factors, according to the new findings can significantly help them achieve their green hydrogen economy goals and make them key players in the hydrogen supply-side equation.

This article has been published with the support from MESHA/IDRC grant for COP27 coverage