

G20-Africa Cooperation in the Renewable Energy Sector: Progress and Critical Perspectives

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Africa's huge renewable energy resources and abundant untapped critical minerals complement to G20 member nations progress in the renewable energy sector. The G20 and Africa or African Union (AU) together share a common interest in cooperating each other under the expanded "G21" framework to utilise renewable resources. Although the G20's priorities not necessarily fully align to Africa's development necessities and expectations yet there remains a mutual ground for strategic collaboration. In the light of African Union's membership in G20 in 2023, this paper examines the existing opportunities and future prospects for mutual cooperation between G20 and Africa within the broad spectrum of "G21". Adopting and applying an Africa-cantered analysis, the paper evaluates both progress and key challenges in shaping G20–Africa relations in the renewable sector for energy transition.

Keywords: G20, Africa, Renewables, Critical Mineral, Energy Transition

Renewables for transition

The escalating global warming and climate challenges have caused unprecedented issues, underscoring an urgent need of drastic reduction of carbon emissions, accelerated energy transition, and promotion of widespread adoption of renewable energy resources. As estimated in the COP21 Declaration, to restrict global warming to 1.5 degree Celsius, the Greenhouse gases (GHGs) emission must peak by 2025-followed by a decline of 43 percent emission by 2030 (UNFCCC). Therefore, various institutional arrangements and initiatives at the global level have

resulted in an increased proportion of renewable productions in the global energy basket. As per International Renewable Energy Agency (IRENA), 2021, the renewable production at the global level has been increased to 3,695GW [1], and has urged the countries to triple (11, 085GW) the existing capacity by 2030. This target is basically aimed at industrialized and emerging economies in the G20 forum, whose member nations together contribute about 80 percent of global pollution. As focussed in the New Delhi Summit of G20, commitment for tripling of renewable capacity represents an ambitious target that requires

sustained efforts and coordinated action by all members of the forum (Shetty, 2023).

There are some other calculus which indicate that these measures are also not sufficient. Even if the triple target of renewable is achieved by 2030, it is not sure that the temperature would come down to 1.5 degree Celsius; rather, taken into account the current level of pollution, the GHGs emissions in 2030 is likely to exceed 1.5 degree Celsius that will add 24 billion tonnes of CO₂ equivalent, whereas the tripling of renewables, as projected by IRENA and targeted by the G20, could neutralise just 7 bn tonnes of carbon dioxide equivalent, which is even less to one third expectations (Sinha, 2023). Although the G20 is not the platform for global decision on climate change mitigation yet its initiatives and commitments facilitate and contribute in achieving the set targets of various Conference of Parties (COP) meetings. Whatever may be, the G20 member nations who have shouldered the responsibility of tripling the target of renewable energy production, reaching the 2030 Agenda of COP21 and beyond, seems challenging to achieve without a substantial support base of Africa that houses 55 developing and least developed nations, which are also in the quest for renewables, and possess a huge quantum of renewable resources and critical minerals 'the Green minerals'-essential for energy transition and consequent climate change mitigation.

Climate commitment

The impasse of Kyoto Protocol (1997) led to the Paris Agreement (2015) where the countries pledged for achieving net zero emission voluntarily by setting a period framework. Net zero implies, "reducing GHG emissions to a level of zero, and if there is any emission that would be brought back to the atmosphere, especially through the natural sinks (Climate Action, UN). Pursuant to it, Germany is committed to achieve net zero by 2045, South Africa, Canada, US, UK, EU, France, Italy, Japan, South Korea and Australia by 2050, Brazil 2060, and India 2070 [2]. China has not made any formal declaration on net zero but intends for 'peak emission' [3] by 2030 before reaching 'carbon neutrality' [4] in 2060. Russia, Argentina, Turkey, Indonesia and Mexico, the signatories of COP21, have not made any formal announced for net zero emission. However, they are committed towards climate change mitigation drives. Likewise, the heavily fossil fuel-dependent Saudi Arabia is attempting for diversification of its economy and investment in the renewable sector [WEF(a), 2023]. The G20's adoption of 'Nine Principles of Collaboration', 'Bali Energy

Transition Roadmap' and collaborations on 'Three Pillars of Energy Security' [5], altogether, have focused on 'Just Energy Transition for Jobs and Livelihoods' (MEA, 2023), adherence to 'Sustainable Energy for All', and encouragement to C3E technologies, clean energy, and energy efficiency. These are some institutional arrangements which implies forum's commitment and collective efforts for renewables. Furthermore, the climate commitments of G20 are evolving over the time and the member countries have set their own agenda, goals and strategies for the promotion of renewable energy and achievement of net zero targets. If Africa is contextualised with the net zero trajectory, it is evident that most of the countries in the continent have signed COP21, however, only a couple of countries have been committed to the net zero targets. In addition to G20 member country South Africa, Kenya has announced a net zero target by 2050 and Nigeria by 2060 (Department of Climate Change, 2023). Considering Kenya's rapid progress, COP28 Chair Sultan al-Jaber of UAE, remarked "the country has led the drive in the African continent for tripling renewable capacity by 2030" [IRENA (a), 2023]. More to mention, Morocco, the signatory of COP21, has been committed for reducing GHGs to 42 percent by 2030 (Putti, 2016).

Renewables-the future of Africa's energy transition

There are basically four factors which have contributed in increasing energy requirements and shift for the renewables in Africa: first, the growing population; second, economic growth; third, increasing energy requirement; fourth, climate change challenges. First, Africa has a steepening population growth. By 27 September 2023, it constituted about 1.4 billion, which counted 17.89 percent of the global population. By 2050, its youth population below the age of 30 is projected to double which will make it one-fourth of the global population (Worldometer). By 2070, according to the African Union (AU), it is expected that "2.4 billion population will be added to the world and more than half of that would be from Africa where 60 percent of the African population would be under the age of 25" (Linking Agenda 2064, AU). Second, economic growth and development have necessitated for an increased energy supply. Africa has a GDP of \$3 trillion that is about 5 percent globally [WEF (b), 2023]. The existing economic scenario is not impressive. For instance, the continent counts just 2.9 and 2.6 percent of global production and trade respectively and about 490 million people live below the poverty line in the continent (Chauhan,

2023). According to the 2019 data of the UN, Africa alone has about 67 percent (32 countries) Least-Developed Countries in the world (UNCTAD, 2019). Yet, according to the African Development Bank (AfDB), “the continent will outperform the rest of the world with its GDP growth of 4.5 percent by the end of 2025 as the global average will reach to 3.2 percent” (AfDB, 2023). Third, both population growth and economic rise have caused an increasing volume of energy consumption. At present, Africa consumes just six percent of world energy requirements (CCDRs, World Bank). In the continent, about 600 million people who constitute over half of the region’s population are in dearth of electricity access and around 900 million don’t have access to clean energy, equipment and technologies (Ighobor, 2022). The coal and oil, along with the traditional biomass of wood, dry cow dung and charcoal, contributes heavily for environmental hazards and health damages. As per the International Monetary Fund (IMF) estimates, the demand for electricity consumption in Africa will increase by 3 percent annually to meet its domestic requirements (Holtz and Golubski, 2021). As the fossil fuels in Africa makes about 77 percent of its energy-mix, there is the need for a rapid progress of the renewable sector to meet domestic requirements and climate change mitigation obligations.

Fourth, Africa contributes about 4 percent of global emissions, yet, it is experiencing the curse of climate change more than the countries emitting the maximum. Frequent droughts in Eastern parts of Africa, landslides in Southern Africa, storms, cyclones in Malawi and Madagascar and Mozambique, and the Libyan floods recaps the extent of loss of lives, property, food insecurity and forced migration. As per Global Risk Report (2023) of the World Economic Forum (WEF), “Climate change impact and environmental risks would dictate the world over next decade which would include six from Africa of the total 10 biggest risk-perceived nations in the next decade” (WEF (c), 2023). Apart from these facts, the various reports related to “G5” Sahel states [6], Cameroon and Ghana have implied that due to climate change there will be GDP losses-ranging between 2 and 12 percent by 2050 which will drive millions more into poverty (AfDB, 2019) in these countries. Moreover, in the “G5” Sahel states about 13.5 million more people are expected to fall into poverty by 2050, if no action is taken” (WEF (c), 2023). On the same tune, the former AU Chairperson Azali Assoumani urged the G20 members who makes about 85 percent and 75 percent of global GDP and international trade

respectively, to cooperate, commit and contribute for climate change mitigation in Africa (Bhattacharjee, 2023).

Drive for the renewables

Africa is home to 60 percent of global renewable assets (Bhattacharjee, 2023) and its untapped solar capacity constitutes about 10 TW, hydro 350 GW, wind 110 GW, and geothermal 15 GW power generation (AfDB, 2018). As estimated by IRENA, by 2030, Africa would achieve 310 GW installed renewable capacity, which in turn, will make Africa a leading force in the renewable sector (AfDB, 2018). But by 2022, its installed renewable capacity was just 55.2 GW that constituted 3 percent of the global share [IRENA, 2022 (a)]. Africa, on the other way, has enhanced adoption of green energy solutions-aligned to the Goal Nos. 1 and 7 of AU’s “Agenda 2063” which are corollary to the Goal Nos. 7 and 13 of the SDGs of the UN that imbibes access to affordable, reliable, sustainable and modern energy for all, along with Climate Action (AU, Agenda 2063). Likewise, AU’s High Level Panel on Emerging Technologies (APET) is focussing on investment and necessary infrastructures. Crucial outcome of this initiative includes the Ouarzazate solar complex of Morocco that has an installed capacity of 580MW (AfDB, 2018). The Congo basin has been developed as the “first line of defence against climate change” and largest carbon sink in the world. Likewise, the ongoing Grand Inga Dam in the Democratic Republic of Congo (DRC) is expected to generate 70 GW of hydroelectricity-the highest ever on a river in the world (Africaintelligence, 2021). Kenya has developed its geothermal capacity to 988.7 MW (The Guardian, 2024) and Ethiopia has enhanced such energy potential to 7.3 MW (Benti and et. al, 2023). Djibouti, Uganda and Tanzania, taken together, have increased geothermal production capacity to one GW (Elbarbary and et. al, 2022).

On the biogas and bio-fuel sector, as estimated by the EIA, the West African region alone possess about 100 mega tonnes of bio residues annually [IRENA (b), 2022]. In Eastern Africa, maximum number of cogeneration units are “bagasse fired” and these plants have been set up across sugarcane cultivation areas with the purpose of reducing conveyance cost and risk of spoilage [IRENA (a), 2022]. Kenya Biogas Programme (KBP) is proactively expanding commercial energy option. This service is expanded to Kenya’s school and slum latrines where the human waste are being used for electrification and sanitation (Down to Earth, 2024). Likewise, Malawi is harnessing

human waste in the prison for electricity generation that is used for lighting and cooking (United Purpose, 2020). The Tanzanian biogas projects have sought to use cattle dung for domestic power consumption (AUDA-NEPAD, 2021). Some African countries like “Algeria, Egypt, Morocco, and South Africa have installed six Concentrating Solar-thermal Power (CSP) projects having the capacity 180 megawatts” (AUDA-NEPAD, 2021). All these developments in Africa are largely due to relative decrease cost of renewable explorations and infrastructure development. For instance, as pointed out by IRENA in 2020, “solar plant projects in Zambia, Senegal and Ethiopia were auctioned off for as low as \$25 per megawatt hour” (Christofaro, 2022). In spite of these progresses, the existing renewable resource potentials are not utilised to a level of requirement and so far it does not constitute a significant share in the African energy-mix and there is an uneven growth of various renewable sectors in the region. For example, the solar energy sector in the last decade had the fastest-growth of 54 percent which was not same to other renewables such as wind 22.5 percent, geothermal 14.7 and hydropower 3.2 [IRENA (a), 2022].

G20 approach to Africa’s energy transition

The global commitment of the G20 for the developing countries, specifically the African states, is a mixed bag which are annotated here. The G20 has extended its support to various renewable projects in Africa by encouraging and assisting the African states with their initiatives, efforts and commitments. It has advocated financial support to the renewable projects through grants, loans and investment, while vigorously encouraging private sector partnership (G20 Action Plan, 2016). As the G20 member nations make about 75 percent of world’s renewable deployments, it is a common benefit for the technologically advanced member nations and resource rich African countries to cooperate each other (Ranjan, 2022, p.85). This is in congruent to the fact that in spite of huge resources for utilisation, Africa still makes just 3 percent of global renewable deployment and 2.4 percent investment (Galal, 2024). So the G20 members in recent years have emphasized the need for helping the Africans by sharing their knowledge, expertise and equipment, along with investment, to harness the resources. Africa is not poor in human resources, but Africans have to develop skill and capacity building to handle renewable technology and equipment. To a holistic approach, the “G20-Africa Partnership”, as launched by G20 in its Hamburg Summit in 2017, primarily focussed on “discussing and supporting

Africans’ energy access, energy infrastructure, renewable projects and energy employment opportunities, where the private investors would be largely encouraged for partnership with their African counterparts (AfDB, 2018).” Within the fulcrum of “G20-Africa Partnership”, the “Compact With Africa (CWA) [7] segment has been initiated for a large-scale investment in the individual African states (G20 Compact with Africa). As a part of this initiative, the Great Inga Dam in DRC has been funded by the European Investment Bank. The G20 Sustainable Finance Working Group (SFWG), under the present South African Presidency, is working for an improved coordination with various multilateral and national development banks (MDBs, NDBs), creation of vertical climate or environment funds (VCEFs), and encouragement to the private sectors for a sizeable investment (G20 South Africa Summit, <https://g20sfwg.org/>). The ‘Africa Expert Panel’ of G20 has been formed to advise the member on climate financing and high level economic policy integration to channelize African renewable assets. On the other side, Africa’s flagship programme ‘Mission 300’, which aims at connecting at least 300 million people to clean electricity in the continent by 2030, requires \$30 billion investment (World Bank, 2024) that is expected from the International Development Association where the G20 members would be the biggest contributors. According to the IEA, achieving universal access to clean cooking energy in Africa will cost \$4 billion per year through 2030 where complementary support from the global players is needed. More to mention, the Nairobi Climate Summit (2023) has set the renewable-energy target of 300 GW for Africa by 2030- an increase of 56 GW in 2022. Therefore, it requires a massive \$600 billion investment which is ten-fold increase in the existing level (Hassan, 2024).

In the COP21 Summit, 2015, the G20 members advocated for more climate financing to the developing countries by spending at least 0.12 percent of GDP per year by 2030 (Holtz and Golubski, 2021). On the same line, the ‘Green Development Pact’ of G20 promised for a low-cost financing for green transition in the developing countries-ranging from \$5.8 trillion to \$5.9 trillion by 2030 that would greatly contribute for limiting the GHGs to 43 percent by 2030 (AU Infrastructure and energy, www.youtube.com). Likewise, the Green Climate Fund of G20 has extended \$7 billion economic Aid to the developing countries in their effort for energy transition. The G20’s adherence to “Five-Point Plan”[8] which advocates for a global investment of \$4

trillion per year in the renewable projects by 2030 indices that Africa will be greatly benefitted by this contribution. However, in practice, much has to be materialised. The developed countries have been committed to deliver \$100 billion financial assistance annually for climate financing to the developing nations which has not ever met (UN, 2023). These countries have not contributed squarely for the 'Loss and Damage Fund', 'Doubling Adaptation Finance' and 'Green Climate Fund', as pronounced in various forums (UN, 2023). The continent owes just two percent of foreign investment for its clean and green energy sector (Ighobar, 2022), 20 percent global adaptation flows in spite of required demand of 30 percent (Global Centre on Adaption, 2023) and \$2.5 trillion short of what is required by 2030 for mitigation and adaptation (Chingono, 2024). Between 2016 and 2022, Africa obtained only \$21 billion for climate funding although annual adaptation costs needed for the continent was estimated at \$30-50 billion until 2030 (SAIIA, 2023), signalled a huge climate financing gap.

Therefore, referring to the present support and future concerns, the UN Secretary General Antonio Guterres reminded the negligence of most of the G20 members on climatic issues. "Had we financed enormously in renewable sector in the past, the world would not be at the epicentre of climate emergency now" (Ighobar, 2022). Referring to G20 role, he reiterated further, "If we do not want to kiss 1.5 goodbye...we need to go to the source – the G20" that emits most to the global pollution and warned "not to fall to the trap of sleepwalking to climate catastrophe" (UN, 2023). Likewise, the G20 member South Africa in the New Delhi Summit of G20 (2023) expressed disappointment over commitments made by the developed countries. While suggesting South Africa's "Just Transition to Renewable Energy" [9] idea for entire Africa, President Cyril Ramaphosa warned the global community, including the African states, that the "cosmetic service" won't work; what is needed, the credible actions which are commensurate to accountability" (Presidential Climate Commission, Government of South Africa). And, with a moderate tune, Samia Suluhu Hassan, the President of Tanzania and G20 Invitee at the G20 Rio Summit (2024), urged the necessity and urgency of G20 support to carry forward African agenda" (Hassan, 2024).

Africa-the repository of critical minerals!

Energy transition is not possible without critical minerals as these are used for renewable deployments.

A resilient and secured supply chain of the critical minerals is the foremost necessity to revolutionise renewable energy at a global scale. Although there is a huge demand for critical minerals yet demand-supply mismatch is a major concern. This is evident from IRENA's '1.5°C Target Document' that has indicated a 33, 000 GW renewable power generation by 2050 [IRENA (b), 2023]. The IEA forecasts that the increasing demand for critical minerals will cause twofold increase in the existing level by 2030 and four-fold by 2050 (IEA, 2022). From the mineral-specific observation, by 2030, copper could cause supply shortfall of 34mmt, cobalt will exceed the current supply by 50 percent, lithium-ion batteries would fail to meet the anticipated seven-fold increase in demand. The six- fold increase in graphite demand will cause a 40 per cent supply shortage and neodymium demand surge would reach to 140 per cent by 2050 (Takyar, 2024). The World Bank has signalled that the production of minerals, such as graphite, lithium and cobalt, could increase to 500 percent by 2050 to meet the increasing requirement of clean energy technologies (World Bank Group, 2020). Further, it forecasts that about three billion tons of minerals will be needed for renewable deployment and energy storage, so as, to achieve below 2°C future (Climate Smart Mining, World Bank). All these implies that it is an imperative for the governments and stakeholders to identify and develop value chains where Africa poses as a potential destination to harness the resources.

Africa possess about 30 percent of global critical minerals (Bhattacharjee, 2023), houses 93 percent global PGM reserves, 55 percent cobalt, 48 percent manganese, 22 percent graphite, 6 percent copper, 6 percent nickel, 7 percent of iron, 5 percent lithium, and a sizeable quantum of silica (silicon dioxide), neodymium and dysprosium (UNCTAD, 2024). The PGM acts as catalyst to the fuel cell that transform hydrogen and oxygen to electricity production. Lithium, cobalt, manganese, nickel and graphite are basically utilised for lithium ion-batteries, which are essential for Electric Vehicles (EVs) as well as Energy Storage System (ESS); copper is required for electrical wiring, motors used in wind turbines, solar panels, and grid connections; iron and steel are used for manufacturing of equipments, largely used in solar, wind, hydro and EVs; silica is used in solar photovoltaic cells as it makes semiconductors which convert sunlight into electricity. Neodymium and dysprosium, the rare earth elements (REEs), are used for various high-tech applications such as production of magnets which are

utilised in wind turbines, electric vehicles, and such other renewable energy appliances and technologies. However, about 30 percent of African critical mineral resources are explored, to which several factors are responsible. First, mineral-rich countries, especially the West African states, see the technologically advanced developed countries largely through the lens of 'neo colonialism' or the 'new scramble for Africa'. Second, political instability, democracy and transparency issues, and security challenges in the critical mineral-rich countries have caused domestic policy inconsistencies and high uncertainties over the projects and exploration processes. Third, technologies and equipment are not largely available in the African market for exploration of resources, and technology transfer is a big issue.

Findings and the way forward

The "G21" forum is intended to take up the interests of both G20 and AU. However, reconciling the interests of both and establishing a concrete and united front for climate change mitigation, would pass through various positive developments as well as challenging aspects, which are mentioned below.

First, the "new scramble for Africa", very much concerned to the Africans, encompasses a wide range of global competition for resources and trade, will affect the future course between G20 and AU. Unlike colonial era scramble, the 'new scramble' narrative implies renewed strategic, geopolitical and economic benefit of the global powers in the continents resources, investments, and markets. Specifically, it includes fossil fuels, critical mineral resources and renewable energy explorations. The issues like sovereign debt burdens, unequal benefits and inadequate climate finance will complicate the situation further. However, the "new scramble for Africa" narrative augments both opportunity and dependency risk. Therefore, it is necessary for the G20 or resource-seeking economies and African countries prepare the roadmap where both could be the real partner in a win-win-situation.

Second, global investment on the renewable sector is not to the level, as estimated by IRENA and IEA. For example, to decrease global warming to the level of 1.5 degree Celsius, by 2030, the global investment requires \$5.2 trillion. But, the G20 investment in 2023 had reached to just \$1.3 trillion, which is the highest ever (Sinha, 2023). So there is a pressing necessity for the G20 nations to invest more, particularly in the resource rich African countries, to meet the set targets.

Third, Africa needs more Grant-based and concessional financing rather than mere loans. Climate finance should not be at the cost of unsustainable debt burdens. Undoubtedly, debt relief can free up fiscal space to the level of investment for climate resilience. So reforming debt structure and scaling Grant funding are of immense necessity where G20 could make a strategic impact.

Fourth, 'Just Energy Transition', as pronounced in the G20 Summit in Italy (2021) and 'Just, and Sustainable Energy Transition', as pronounced in New Delhi summit in 2023, encompassed a wide range of socio-economic aspects, broadly Environment, Social and Governance (ESG) practices, which intended to comply AU's 'Agenda 2063' and 'Renewable Energy Strategy' (UNEP, 2023). Therefore, it is necessary that both G20 and AU could adhere to policy connectedness and preparedness for policy execution. Although there is a hope of policy connectedness and policy execution, it is imperative to see, how and to what extent the G20 could carry forward AU's 'equity' and 'just energy transition' mission that encompasses sustainability along with social licensing. Further, establishment of a dedicated Working Group in the "G21" could be a best monitoring force for Africa's renewable projects and energy transition missions.

Fifth, as there is overdependence of the Africans on fossil fuels to sustain their economic growth, these countries finds it tough to shift to the renewable as it is bit costly in the region and infrastructure is not available to the extent. Therefore, renewable energy needs to be available at an affordable price, competitive to fossil fuel, and deployment facilities are easily available

Sixth, mitigating ESG concerns like habitat destruction, ecosystem fragmentation, climate risk, loss of livelihood, social licensing, displacement and inadequate compensation, negligence to local expectations, labour rights violation, lack of transparency, poor enforcement, uncertainty and legal risks, should be the top priorities of the African countries for real and purposeful utilisation of the resources in the region. The resource-seeking or developing countries should equally partner to their African counterparts to resolve the issues.

Seventh, technology transfer in the form of solar PV, storage system, green hydrogen, and localising manufacturing units will better integrate the nations in

Africa. However, the existing challenges of non-transfer of technologies, mostly by the developed countries, will stuck global progression on the renewable sector. Therefore, onus lays mostly with the developed countries.

Eighth, infrastructural development in the form of setting of smart grids, grid expansion and energy corridors (such as solar and wind) can enable large-scale renewable integration and supply multiplication in Africa.

Ninth, the G20 nations can best provide training, expertise exchange and partnerships with the African universities and institutions to build human capital. These steps will work better since there are hardly any controversial issues involved in the capacity building process.

Tenth, policy and regulatory framework in the form of sharing best practices, grid management and policy design, along with strengthening institutional and regulatory framework, will definitely attract more private investment which are required for Africa.

Eleventh, the AU as a representative of African countries has its own structural and functional issues. For example, the European Union (EU), the member of G20, has developed very strong institutional mechanism such as common parliament and banking systems apart from well-integrated market structure, which is lacking in the AU system. Likewise, the EU has a homogenous functional mechanism that is common to the regional interest. However, this is not the situation to the AU which is broadly a heterogeneous platform with a varied policies, interests and claims. Therefore, it is an issue with the AU that to what extent it will put forth African demands before the G20 forum.

Twelfth, many G20 members are also members of global institutional arrangements such as Global Biofuel Alliance, Global Hydrogen Ecosystem, International Solar Alliance, International Renewable Energy Agency (IRENA), and International Energy Agency (IEA), where the AU can take the leverage.

Thirteenth, as there are economically fast growing developing economies in the G20 forum and Africa has strong relationships with them, these countries could act as bridge to the conflicting claims of the developed countries and EU in the one side and the African countries on the other. On this count, India,

Brazil, South Africa and Indonesia could be catalytic bridge.

Conclusion

It is pertinent that the renewables have potential to bring two-pronged solutions, both for the G20 and AU countries, in the form of fulfilling energy requirements and fulfilling climate change mitigation obligations. The G20 member nations have resorted to various climate change mitigation measures yet they have to follow a higher trajectory than the existing level. Taking consideration of the AU, the African countries have a huge renewable potential to harness. There have been promises of the G20 member countries for the Africans' quest for the renewables, but commitment and contribution are not at par. Yet, AU's membership in G20 is a landmark institutional arrangement for Africa's focussed engagement with the developed and fast developing economies in the world, which have made significant progress in the renewable sector. In their journey for energy transition, both G20 and AU will face some odds and challenges, yet overcoming those issues, bilaterally and multilaterally, are of mutual interest. The "G21" has a promising future and the member countries should take effective steps corollary to international obligations on climate change mitigation. The G20 member countries needs to address the Africans' concern while exploring untapped resources and investing in the African markets. With an equal climate responsibility, the African countries would not be blamed in future for their present negligence as the industrialised countries are accountable today for their past emissions. Moreover, it is true that the G20 climate actions are not to the level as expected yet it is also true that the age-old issues are seeking new solutions where Africa is a definite partner.

End Notes

[1] By 2021, the globally installed renewable energy capacity constituted 39 percent of all installed energy capacities, and in actual electricity generation, it constituted 28 percent. In, Kanitkar, T. and Jayaram, T. (2023). Disentangling the 2030 Global Renewable Energy Target, *The Hindu*, September 15, p. 6. And, IRENA. Africa: Key facts. Accessed 16 April 2025, from <https://www.irena.org/How-we-work/Africa>

[2] Multiple sources taken into consideration while compiling the data

[3] Achieving the highest level of emission trajectory that is followed by beginning of emission decrease

[4] Balancing CO₂ emission through the methods of reforestation, carbon capture, carbon storage and such other means.

[5] Three Pillars include 'Energy Security, New Energy Drivers, and Decarbonisation'.

[6]. G5 consists of 5 Sahel countries in Africa, which includes Burkina Faso, Chad, Mali, Mauritania, and Niger.

[7] The CWA countries today include Benin, Cote d'Ivoire, Burkina Faso, Egypt, Ethiopia, Ghana, Guinea, Morocco, Rwanda, Senegal, Togo and Tunisia.

[8] Plan includes, emission cut, finance, adaptation, acknowledgement and promises on loss and damage, and implementation. This was pronounced in COP26 Summit in Glasgow in 2021

[9] 'Just Transition' in Africa is a pragmatic and sensitive approach that focuses on socio-economic requirements while pursuing energy transition.

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