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## Harnessing EU-Kenya renewable energy relations for a bright future

Unlike many of its neighbours, Kenya is progressing towards universal electrification from 100% renewable sources as set out by the country's Vision 2030 Agenda. This feat, however, does not mean that there are not areas for improvement of its energy profile, especially around grid resilience, energy access and mitigating fluctuating supply and volatile prices. The EU stands poised to help this strengthening, not only due to the bloc's leading presence in the Kenyan energy transition, but also because of growing geopolitical competition in Africa. The EU aims to beat its competitors in the field of green technologies. Moreover, as part of the external dimension of the European Green Deal the EU aims to avoid further carbon lock-ins, strengthen the ability of countries like Kenya to meet their Nationally Determined Contributions under the Paris Agreement and boost the EU's international influence and visibility. This policy brief enumerates opportunities and offers recommendations for the evolution of EU-Kenya relations in the field of renewable energy.

### Introduction

The 2022 EU-Africa Union summit was the first of its kind for 5 years, following a public breakdown in relations between the blocs over a variety of issues. Contrastingly, EU-Kenya relations have typically avoided this trend and are viewed in a positive light by both Brussels and Nairobi. The EU High Representative for Foreign Affairs, Josep Borrell, recently stated that Kenya is primed to move from being a country that receives donations and developmental support to a 'strategic partner' for the EU, demonstrating Kenya's position as a leading player in East African affairs.<sup>1</sup>

As part of this growing relationship, climate action and in particular renewable energy is likely to take centre stage within a renewed partnership. Kenya is already considered a leader in renewable energy within the region, with more than 90% of the country's current electricity generation coming from renewable sources.<sup>2</sup> Simultaneously, European public and private investors are in fact the largest external supporter in the Kenyan energy transition, funding a range of interventions from the flagship Lake Turkana Wind Farm project to supporting the strengthening of regulatory frameworks. However, problems persist with regards to

1 Benjamin Fox, "[Borrell – EU will be 'trading partner not donor' in new deal with Kenya](#)", *Euractiv*, January 31, 2022.

2 Remeredzai Joseph Kuhudzai, "[Renewables Provided 92.3% Of Kenya's Electricity Generation In 2020](#)", *Clean Technica*, November 4, 2021.

energy access, the price of electricity, grid stability and the use of clean energy in rural areas, for instance in cooking.

The aim of this policy brief will be to discuss EU-Kenya relations in the field of green energy with a view to bolster Kenya's leadership in this field also in the wider region. The paper discusses areas of opportunities and risks for EU engagement, before offering policy recommendations for next steps in enhancing EU-Kenya cooperation and helping towards realising the external objectives of the European Green Deal.

### Kenyan Renewable Energy State of Play

Renewable energy is a cornerstone of the country's Vision 2030 agenda, not only to enhance economic security, but also to transform Kenya into a regional leader. Despite renewable generation capacity only being 74% of the total, 92% of electricity generated came from renewable sources as of 2020. A total of 44% of Kenya's total electricity generation comes from geothermal sources, 36% from hydropower sources, with fossil fuels only making up 7% of actual generation (from thermal power plants).<sup>3</sup> Whilst wind and solar are yet to contribute substantial amounts to the energy mix, the potential for generating electricity from these sources is high, with the Kenyan government having already committed to increasing the solar energy generation capacity to 600MW by 2030.<sup>4</sup>

Kenya's climate commitments, as written down in its Nationally Determined Contribution to the Paris Agreement, are ambitious. The country aims for a 30% reduction in greenhouse gas (GHG) emission levels by 2030, with the government keen to mainstream the green energy

agenda through all levels of society.<sup>5</sup> This is especially important given that the next Conference of Parties (COP 27), being held in Egypt later this year, has a focus to promote climate action in Africa.

One of the most transformative pieces of legislation for Kenya's energy transition was the Energy Act of 2019. Not only does it legally enshrine the goal of universal electricity access by 2030, but it also devolves the provision and planning of energy from the federal to county-level governments. This pushes county planners to use more local, renewable energy sources in addition to decoupling economic growth from energy consumption, shaping a less fuel intensive system. Kenya, compared to the rest of the region, already has sophisticated and intricate layers of bureaucratic institutions. For example, the Rural Electrification Authority (REA) leads Kenya's attempts to electrify communities based in the countryside, whilst the Geothermal Development Company (GDC) manages the portfolio of Kenya's geothermal energy sources, including future capacity and technological development.

### Areas for Improvement

There are, however, some remaining areas for improvement. The first revolves around **rural electrification**. Access in rural areas remains limited. Under Vision 2030, rural electrification from the grid aims to hit 40%, yet less than 20% of rural households still do not draw electricity from the grid.<sup>6</sup> Consequently, approximately 10 million Kenyans draw their power from mini-grids or off-grid units such as solar

3 Kuhudzai, "[Kenya's Electricity Generation](#)".

4 Pailine Kairu, "[Solar E-Waste: What is Kenya's recycling, disposal strategy?](#)", *Sustainable Inclusive Business*, February 18, 2020.

5 United Nations Development Programme, "[NDC Support Programme: Kenya](#)", 2022.

6 Magda Moner-Girona, Katalin Bódisa, James Morrissey, Ioannis Kougiassa, Mark Hankins, Thomas Huld & Sándor Szabó, "[Decentralized rural electrification in Kenya: Speeding up universal energy access](#)", *Energy for Sustainable Development*, 2019, 52 (October 2019): 130.

panels.<sup>7</sup> Weaknesses in grid resilience and susceptibility to damage, the difficulty of installing renewable energy stations in rural areas and the migratory patterns of pastoralist communities all present access challenges. The **persistence of a nomadic (or semi-nomadic) lifestyles lock in old attitudes** regarding the use of biogases and fossil fuels, making it harder to transition the energy usage on a local scale. There is also **substantial resistance** from local communities over the costs and environmental impact of renewable energy projects. Local community activism includes pushback against the geothermal plant at Olkaria IV and wind power plant at Kinangop.<sup>8</sup>

Kenya's difficulty in last-mile electrification and grid expansion projects stem, in part, from the high financial and technical costs of building networks in remote regions. **Grid resilience** is weak, with an elevated risk of blackouts due to fluctuating production and the poor quality of transmission infrastructure, demonstrated by a third national blackout in four years after electricity transmission towers collapsed in January 2022.<sup>9, 10</sup> Rural electrification projects such as the Last-Mile Connectivity programme run by the Ministry of Energy, are vastly overbudgeted (from 9.9 billion Kenyan Shillings to 34 billion).<sup>11</sup> They are also criticised for their **lack of focus on the productive use of energy** such as in

schools and private industry, paying attention mainly to electrifying homes.

The rapid growth of renewable usage means that Kenya has still not yet been able to build out its **energy storage capabilities** for times of overproduction to compensate in times of underproduction. Renewable energy yields often oscillate, given the inconsistency in the flow of sources compared to fossil fuels. This means that the maximum usage and capacity is limited to the current levels of production; Kenya is only able to generate a 14% of its maximum capacity, despite the government signing of Memorandums of Understanding (MoU) with companies like Toyota and Windlab to build new storage facilities nationwide.<sup>12, 13</sup>

The private renewable sector, with more support, has the potential to help offset the growing issue of **energy prices**. Kenyan electricity costs have slowly been rising since 2011; today, electricity costs \$0.212 USD per kWh versus a global average of \$0.137 USD, raising concerns about growing energy poverty.<sup>14</sup> The surge in energy prices globally following the COVID-19 recovery and the situation in Ukraine are likely to have a knock-on effect in prices, even though dependency on fossil fuels is low for Kenya. This is due to integrated economics of the global energy market and is likely to worsen concerns over domestic pricing and poverty. Whilst private actors are becoming more visible within the off and mini-grid sectors, as well as developing the overall capacity, the state still has a monopoly on distribution and transmission activities. Prices becomes sticky without market forces keeping providers price-competitive, worsening consumer utility and cost.<sup>15</sup>

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7 Natascha Wagner, Matthias Rieger, Arjun S. Bedi, Jurgen Vermeulen & Binyam Afewer Demena, "[The impact of off-grid solar home systems in Kenya on energy consumption and expenditures](#)", *Energy Economics*, 2021, 99 (July 2021): 4.

8 Ana Pueyo, "[What constrains renewable energy investment in Sub-Saharan Africa? A comparison of Kenya and Ghana](#)", *World Development*, 2018, 109 (September 2018): 90.

9 Carlos Mureithi, "[Kenya got hit by a third nationwide power outage in four years](#)", *Quartz Africa*, January 13, 2022.

10 Kees Mokveld & Steven von Eije, [Final Energy Report Kenya](#), (Den Haag: Netherlands Enterprise Agency, 2018): 5.

11 Wachira Maina, [State Capture: Inside Kenya's Inability to Fight Corruption](#), (Nairobi: Africa Center for Open Governance, 2019): 24.

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12 Renewable Energy World, "[Energy Storage is the key to energy access in East Africa](#)", March 4, 2020.

13 Carmen, "[Meru County Energy Park – Battery Energy Storage System, Kenya](#)", *Power Technology: Market Data*, September 3, 2021.

14 Global Petrol Prices, "[Kenya Electricity Prices](#)", June 2021.

15 Pueyo, "[Constrains Renewable Energy](#)", 86.

**Kerosene and coal also continue to be used for cooking and heating**, especially in rural areas, where about 87% of households still use kerosene for heating.<sup>16</sup> Other forms of non-renewable energy such as biomasses, like wood and charcoal, are still used heavily in cooking. Coal has been identified by the Kenyan government as a medium-term solution to bridge the gap to universal energy access. Biomass is of particular concern given health concerns over its usage, as well as the fact that converting the population towards electric-based cooking methods is not very compatible with rural or pastoralist preferences or customs. There are also continued concerns over similar carbon lock ins when it comes to supporting a transition towards **electric vehicle usage** (EV).

Despite the development of complex regulatory institutions and being more attractive for foreign investment compared to the rest of East Africa, Kenya still suffers from **corruption**. The 2019 arrest of Finance Minister Henry Rotich over the misappropriation of 21 million Kenyan Shillings (about €164.000) during the construction of the Arror and Kimwarer dams indicates that corruption is endemic, with the renewable sector not being exempt.<sup>17</sup> This poses challenges for the efficacy and political desire by European capitals to keep resourcing. Given the existing difficulties to access EU funding, this is likely to work against Kenya.

In addition to issues around corruption, the energy industry is also at **risk of politicisation**. Control of the overall energy architecture is in the hands of the government, with the institutions not being fully independent and resistant to political pressures, as evidenced by corruption and public mismanagement. With concerns over politicisation driven by the political opposition's linkages to owners of backup diesel generators, Kenya's energy infrastructure struggles to maintain its

integrity and neutrality. Finally, the Energy Act of 2019, whilst offering greater autonomy to the 47 counties in terms of energy planning, is characterised by uneven and in some cases, **a lack of technical and material capacity** to convincingly execute this mandate.

Certainly, Kenya is far ahead of many EU countries when it comes to the low carbon transition, yet support is needed to facilitate investments in renewable generation, storage, transmission, as well as eradicating energy poverty and further strengthening the safeguards and integrity of the market itself.

## The EU's Geopolitical concerns in Africa

Borrell's statements about an equal partnership with the EU are a necessary change to how the EU views cooperation with the African continent. The growing discord at an EU-AU level is a demonstration that African nations feel that Brussel's interests dominate the relationship. Anger at France's drawback in anti-terrorist operations in the Sahel, inequity in Covid-19 vaccine access and the continuing migrant crisis have undermined trust in the EU.<sup>18</sup> This has left the door open for Russia and China to continue expanding their influence. The intensifying of cooperation with Russia's infamous Wagner Group (mercenaries) by national actors in Mali, Mozambique, Central African Republic and Libya represents a shift away from Europe as the key external patron of national security.

The EU is also concerned with the deep economic engagement of China in Africa, which is well demonstrated by their activities in Kenya. Financing from Beijing accounts for 67% of all Kenyan foreign debt, through loans, which demand less structural or political reforms, but often comes at higher interest repayments despite the knowledge

<sup>16</sup> Energypedia, "[Kenya Energy Situation](#)", 2022.

<sup>17</sup> Hassan Mugambi, "[How Ksh. 21 Billion Vanished In Arror, Kimwarer Dams Scandal](#)", *Citizen Digital*, February 28, 2019.

<sup>18</sup> Paul Melly, "[Why France faces so much anger in West Africa](#)", *BBC*, December 5, 2021.

that Nairobi would struggle to repay.<sup>19</sup> This almost came to a head when there were reports in 2018 that the Kenyan government was thinking of transferring ownership of the port of Mombasa to China, as they could not afford the debt repayments.<sup>20</sup>

Concerns that the Belt & Road Initiative's (BRI) 'debt-trap diplomacy' could make Kenya, and by extension, other African countries, even more dependent on China are compounded by Chinese investments, geared towards traditional fossil sources, such as coal. Although the Chinese-financed Lamu coal power plant was defeated in the Kenyan courts in 2019, carbon lock-in investments continue to add to the geopolitical worries for the EU.<sup>21</sup> Transforming relations with African nations from an item on the developmental agenda to partnerships based on parity is necessary to hedge off the embedded influence of the EU's rivals, which is especially prevalent now as a 'new Cold War' could turn Africa once again into a hotly contested proxy zone.

## EU-Kenya Relations

That is why enhancing EU-Kenya relations can help improve the number of access points and level of trust within EU-Africa relations on a multilateral level. Kenya being a leader in both East Africa and the wider continent when it comes to issues like energy, security and finance helps for the country to act as a link to more Euro-hostile nations. The EU represents Kenya's largest export market (21%).<sup>22</sup> The Union has opened strategic dialogue with Kenya regarding the ratification of the stalled Economic

Partnership Agreement (EPA) between the EU and East African Community (EAC); the EU clearly sees Kenya as a key regional partner to help leverage less convinced states to acquiesce.

European investors (public and private) are also the largest current supporters of Kenyan green energy. Institutionally, EU funding and technical support for projects such as the Lake Turkana Wind Farm have helped the acceleration of Kenya's renewable energy potential. The EU also just approved €100 million for a geothermal risk mitigation facility (in partnership with German and British development organisations KfW and FCDO respectively), a financing extension of the Olkaria geothermal plant, as well as two 40MW solar power plants in Eldoret.<sup>23</sup>

Outside of capacity building, the EU has been a firm supporter of grid improvement. Programmes such as Last-Mile Connectivity and the Kenyan Green Mini-Grid Facility are financed by the European Investment Bank (EIB) and France's Agence Française de Développement (Afd).<sup>24</sup> The EU Global Technical Assistance Facility for Sustainable Energy (EU GTAF) assists Kenya in 'improving regulatory frameworks, enhancing institutional capacities and mobilising investments in sustainable finance'.<sup>25</sup> EU governments and development actors are key external partners in the Kenyan energy transition, and there is an opportunity to leverage the success in this area as a template for more equitable and balanced relations with other African countries.

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19 Martin Mwita, "[China remains boss as Kenya's debt hits a record Sh8 trillion](#)", *The Star*, January 31, 2022.

20 Duncan DeAeth, "[China's African debt-trap: Beijing prepares to seize Kenya's port of Mombasa](#)", *Taiwan News*, December 27, 2018.

21 Anonymous, "[Chinese firm signs Sh96bn contract for Lamu coal-fired electricity plant](#)", *Business Daily Africa*, June 8, 2015.

22 European Commission Directorate-General for Trade, "[European Union, Trade in goods with Kenya](#)", June 2, 2021: 4.

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23 Delegation of the European Union to Kenya, "[Infrastructures, energy and water: EU support for Kenya](#)", September 7, 2018.

24 Delegation of the European Union to Kenya, "[Infrastructures](#)".

25 European Commission, "[The EU Global Technical Assistance Facility for Sustainable Energy \(EU GTAF\)](#)", December 22, 2020.

## Opportunities for EU External Energy Policy in Kenya

It is evident that Kenya is well on its way to achieving universal access completely drawn from renewable sources. To support this endeavour, the EU is likely to add greatest value in the peripheral and structural elements of the Kenyan energy system, to support the eradication of energy poverty and towards universal access, price stabilisation and grid resilience. There are broadly four areas the EU could support, although many of these recommendations can be classified as having aspects of more than one:

### Financing

- Improving transmission structures and central grid resilience is the biggest operational issue Kenya currently faces. Within the EU's **Neighbourhood, Development and International Cooperation Instrument (NDICI-Global Europe)**, there is the **EU Municipal, Infrastructure and Industrial Resilience Programme**, which aims to provide up to €500 million in funding from the European Bank of Reconstruction & Development (EBRD) to support the strengthening of, among many other areas, electricity and transmission grids from urban to rural areas.<sup>26</sup> An expansion in the programme eligibility would be necessary.
- Brussels might also support the expansion of self-generation, off-grid projects. Due to the high number of pastoralist, nomadic and rural communities, only relying on strengthening the main grid will not improve access for these groups. In the short-term, continued support especially for self-generation/off-grid solutions such as solar panels and local photovoltaic supplies would be key. This can be achieved by deepening participation in the **Kenya Off-Grid**

**Solar Access Project**, where SNV Netherlands Development Organisation takes a large share. Such support could come out of the general **NDICI** budget.<sup>27</sup> In the long-term, more financing for mini-grid systems based around solar and wind plants, again from NDICI, could be made available, especially to generate greater energy access and autonomy for individual counties.

### Operational/Technical

- Additionally, the EU could expand the coverage of the **Global Technical Assistance Facility (EU GTAF)** towards technical support for the implementation of failsafe and anti-blackout software. This also applies to transmission infrastructures such as rural electrical cables, and uneven production mitigation strategies.
- EU member states could also step up their participation in the **Green Grids Initiative** (launched at COP26 in Glasgow), which aims to create a global grid of electricity focused on renewable energy. This could mainly benefit Kenya's counties, especially those rural counties where access challenges are the greatest. The EU would need to ensure that any programme would be tailored to individual county needs.
- Another key issue is improving energy storage. The EU is aiming to become a world leader in energy storage and battery technology, as per its recent Strategic Foresight report.<sup>28</sup> The EU could help admit Kenyan companies into the **European Battery Alliance**, which would support domestic companies in accessing the latest innovations in technology and supply chain management. Moreover, through the EU's **Horizon Programme**, which funds research and innovation, the EU could expand the coverage of its **BRIDGE projects** to Kenya, especially regarding the use of second-hand batteries in cooking and heating units as

26 European Commission, "[EU Municipal, Infrastructure and Industrial Resilience Programme](#)", 2020.

27 SNV, "[Kenya Off-Grid Solar Access Project \(KOSAP\)](#)", SNV Netherlands, 2022.

28 European Commission, "[Strategic Foresight Report 2021](#)", September 2021: 10

well as developing new strategies for the domestic Kenyan battery market.<sup>29</sup>

### Developing Markets

- Helping Kenya shift away from fossil-powered vehicles towards EVs is a key area where the EU could support. The country does not manufacture cars and bikes, relying on imports which can be expensive, or on outdated vehicle models which are very fuel inefficient. Progress has been made, especially regarding mass-transit EVs with Kenyan start-ups receiving substantial amounts of seed capital.<sup>30</sup> Yet a gap still exists around private vehicles. The EU could leverage the companies such as Renault and BMW, leaders in European EV technology and manufacturing, to **increase their partnerships with local companies**, to help develop an indigenous market, in line with a more parity-led approach to relations.<sup>31</sup>
- Like EVs, clean cooking also needs EU support. In the recent **Multiannual Indicative Programme (MIP)** for Kenya, clean cooking is not mentioned. In this regard, the EU could set up, through the Team Europe Initiative budget for Kenya (€188 million), a **Clean Cooking Initiative**.<sup>32</sup> This initially would look to supply more advanced forms of biomass-based cooking technologies directly to rural communities, working particularly with the counties, given their privilege over local energy planning. In the medium to long-term, the EU could facilitate direct technology transfers, through the new initiative or EU GTAF, of more climate-positive biogas digesters and other newer clean

cooking technology.<sup>33</sup> The aim would be to build up a native Kenyan clean cooking industry, like the above proposals on EVs. Again, clean cooking, like with the section on expanding EU GTAF, would need to also focus on a county level, given that clean cooking implementation is not nationwide and concentrated in the poorest or most rural counties of the country.

- The EU could also support the strengthening of Kenya's private renewable energy market. Encouraging Independent Power Producers (IPPs) and a wider domestic market could help halt rising prices and make the sector more financially lean and technologically efficient. To this end, the EU could fast-track Kenyan recipients for the **EU Market Creation Facility**. This is another tool housed within **NDICI**, which helps with currency and FX risks and hedging. It has a total budget of €4 billion, and Kenyan companies are already eligible to participate.<sup>34</sup> This would help IPPs access liquidity easier, reducing the barriers to entry. Moreover, the EU could demand that IPPs must be part of the ownership and management of any future investments, such as the agreement between the EU, KenGen and IPPs at the Olkaria Power Plant.<sup>35</sup>

### Regulatory & Strategic

- The EU could Utilise the upcoming **Strategic Dialogue** to gain intelligence on what Kenya needs and communicate what the EU has currently to support the energy transition. Moreover, discussions to revive the **Economic Partnership Agreement (EPA)** with Kenya could include firm provisions and commitments on the EU's commitment to renewable energy development within the wider region, with Kenya acting as the regional

29 European Commission, "[Energy Storage](#)", 2020.

30 Annie Njanja, "[BasiGo secures \\$4.3 million in seed funding to accelerate mass transit EV adoption in Kenya](#)", *TechCrunch*, February 9, 2022.

31 Netherlands Enterprise Agency, "[Kenyan Circular Economy Trends Opportunities](#)", (Den Haag: RVO, 2021): 18.

32 European Commission, "Republic of Kenya Multiannual Indicative Programme 2021-27", June 22, 2021, 16.

33 Fiona Lambe, "[Bringing clean, safe, affordable cooking energy to Kenyan households: an agenda for action](#)" (Stockholm: Stockholm Environment Institute, 2016): 4.

34 European Commission, "[EU Market Creation Facility](#)", 2020.

35 Mokveld & von Eije, "[Final Energy Report Kenya](#)", 8.

hub to channel European expertise and resources; the **EIB** can be a strong choice to support here.

- Whilst more of a regulatory issue, the EU could scale up programs in anti-corruption measures and improving public sector management. The new MIP has a clear focus on strengthening wider democratic and economic governance, with €83.5 million dedicated to this pillar between 2021 and 2024.<sup>36</sup> **New training programmes tailored to reducing wastage, increasing efficiency and transparency in the energy sector** could be designed and implemented on both a national and county level. Specific focus could be made on ensuring energy auctions are fair and departments such as the REA and KenGen have clear reporting and accounting structures. Again, a Team Europe approach could be taken, leveraging member states experience with strong levels of energy and economic governance and asking them to lead the designed programmes.
- To further support regulatory efforts in the private sector, the EU could utilise a Team Europe approach again to facilitate knowledge transfers of energy and economic policy and market law. The EU's **Horizon Programme**, the main vehicle for research and development into climate action within the EU Green Deal, could be the mechanism to foster cooperation, potentially through grants for universities and research centres to engage with Kenyan institutions, topics or actors.
- Given the importance of Kenyan counties in energy planning and their relative lack of capacity to effectively execute this competency, **amendments to the EU's MIP and further Kenyan engagement strategies** over energy (as with all the above suggestions) should incorporate support for energy planning at a county level.

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36 European Commission, "[Multiannual Indicative Plan](#)", 19.



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[www.clingendael.org](http://www.clingendael.org)  
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### About the authors

**Louise van Schaik** is Head of Unit EU & Global Affairs at the Clingendael Institute. She also coordinates the research on climate change and is specialised in EU external action, European energy & climate policy, climate-security and global health.

**Akash Ramnath** is a Junior Research Fellow within the EU & Global Affairs Unit at the Clingendael Institute. He specialises in EU external action, energy geopolitics and climate-security. Akash also has an interest in geo-strategy and conflict mediation topics across the European neighbourhood.

**Douwe van der Meer** is a Research Assistant within the Planetary Security Initiative (PSI) at the Clingendael Institute. He specializes on climate-security and energy transition topics, mainly in the MENA, Caucasus and Central Asia regions.