

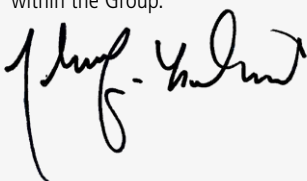
EDITORIAL

The Paris Agreement and the Sustainable Development Goals (SDGs) are a call to action to address some of the world's most pressing challenges related to limiting global warming to well below 2°C. Governments around the globe commit themselves to voluntary Nationally Determined Contributions (NDCs) to reduce greenhouse gas emissions.

The World Economic Forum estimates that about 5.7 trillion dollars need to be invested annually in green infrastructure, most of it in developing countries. According to the Climate Policy Initiative, only around 410 billion dollars are currently deployed annually. Most of the substantial investment gap will need to be filled by the private sector. Yet, conflicting policies and regulations and insufficient financial instruments that can trigger private sector investment at scale cause a bottleneck especially in developing countries.

GFA know-how and experience can contribute meaningfully to address this bottleneck. We are committed to generate value added that enables our clients and partners worldwide to realize investments that effectively serve their commitments to the Paris Agreement and the SDGs.

With this in mind, we have recently established a Climate & Energy Cluster at GFA to pool and synergize the wide range of expertise across the entire GFA Group in terms of climate change adaptation and mitigation. This newsletter introduces the GFA Climate & Energy Cluster and the competencies it can draw on from various GFA subsidiaries and technical operations within the Group.



Dr. Christoph Schaefer-Kehnert
Managing Director
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THE GFA CLIMATE & ENERGY CLUSTER

Coping with a rapidly worsening climate crisis and moving from a fossil fuel-driven development path towards a low-carbon economy poses one of the biggest global challenges for many years to come. Feasible solutions for adaptation to and mitigating climate change require multi-disciplinary know-how and innovation across all sectors and involve a broad range of stakeholders. The newly established GFA Climate & Energy Cluster addresses this demand.

There is a need for enabling institutions and coherent policies and regulations that stimulate innovation and investment with an economically viable potential to enhance climate resilience and reduce greenhouse gas emissions. The scale of the challenge is certainly beyond that of public finance alone. In addition to the commitments made by national governments in their Nationally Determined Contributions (NDCs), a significant increase in investment by the private sector is essential. To leverage such investments, targeted financial instruments and regulatory safeguards need to be put in place to mitigate investors' risks associated with high local interest rates, loan tenor, foreign exchange and the specific political environment.

The Climate & Energy Cluster enables GFA to provide the required mix of technical, institutional and financial advisory and project management services to respond directly to the specific needs of clients and partners. Taking a cluster approach enables GFA to flexibly pull together the required resources, know-how and networks from all technical units and subsidiaries within the GFA Group. The Cluster capitalizes on 25 years of world-wide experience and competencies from approximately 400 climate-related studies and projects across all relevant sectors, including green energy and energy efficiency, agriculture and forestry, green economy, water, waste, and urban development.

The Climate & Energy Cluster serves as an internal platform for cooperation and exchange. Specific technical working groups have been setup to value synergies on the interfaces between the different competencies anchored in various parts of the Group. Currently, four technical working groups are assigned to advance crosscutting cooperation related to Climate Change and Climate Finance, Green & Circular Economy, Transport & Mobility, and Energy.

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Solar panels on public buildings in Lebanon – see project on page 6

GFA CLIMATE AND ENERGY COMPANIES AND COMPETENCES

GFA CLIMATE COMPETENCE CENTER – MITIGATING CLIMATE CHANGE

Responding to the challenges of climate change mitigation, the approach of the GFA Climate Competence Center is rooted in technology, policy and financing, and strives at aligning sector-level climate policies with regard to energy, waste, industry and the environment. Its cutting-edge technical advice for promoting renewable energy, energy efficiency, and Reducing Emissions from Deforestation and Forest Degradation (REDD+) constitutes an essential element in the GFA Climate & Energy Cluster.

The Climate Competence Center designs sectoral programs, mostly in developing countries, by focusing on the identification of economically viable abatement potentials that lead to a reduction in public expenditure while reducing GHG emissions. The Center aims at creating an enabling environment based on sound national policies and regulations. This allows for transformational change in the whole sector as well as for effective private sector participation in mitigation activities by switching from subsidies to investments. Crowding in private sector investments is facilitated by well-designed push and pull policies such as carbon tax or cost-reflective tariffs in combination with appropriate financial support instruments, e.g. climate and carbon finance, concessional funding, guarantees and insurances. This is particularly important as prime interest rates offered by commercial banks would otherwise often favor technologies with low upfront investment and large operation ex-



Climate change affects regions worldwide

penditure such as diesel generators over climate friendly technologies with high capital investment but low operation expenditure, e.g. hydro or wind power. Commercial interest rates are substantially higher than government discount rates. In this context, the Center draws on the specialized expertise on structured finance and blended funding in GFA Climate & Infrastructure within the GFA Group.

Following this approach, the Climate Competence Center has been developing specific pilot programs to test new cooperative actions under the Paris Agreement.

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HEAT – COOLING AND REFRIGERATION

How can the right choice of technology help protect the environment? Which policies can countries choose to enter a climate-friendly pathway? How to reverse ozone layer depletion? In times of climate emergency, HEAT provides advisory and engineering services as well as capacity building for the future. Supporting Germany and developing countries in their fight against depletion of the earth's protective ozone layer, the sustainable transition of the refrigeration and cooling sector is at the core of HEAT's work. The company has completed more than 300 missions in over 25 years, and is currently engaged in 30 countries. The passion to develop capacity building and training related to know-how on climate friendly and energy efficient technologies is what HEAT contributes to the Climate & Energy Cluster. In particular, the company provides emission inventories and mitigation pathways, advice on the development of laws, regulations and standards, and engineering services.

In Senegal, for example, outdated and inefficient appliances such as refrigerators and air conditioners are widely used. Together with GFA's Energy Department HEAT currently implements the Program for Sustainable Energies to enhance Senegal's regulations and standards for appliances. In recent years, HEAT has gathered substantial experience in programs improving the energy efficiencies of appliances, particularly in



HEAT training of trainers workshop in Brazil

the cooling sector. In Turkey, HEAT and the Center are working towards the transposition of the European regulation on the use of fluorinated gases (F-gases) that contribute to global greenhouse effects. Within this project, HEAT has carried out capacity building programs for Turkish technicians and stakeholder workshops with representatives of the refrigeration and air conditioning industry. The transition to F-gas free refrigerants provides a low-cost and massive opportunity for Turkey to lower its carbon footprint.

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GFA CLIMATE & INFRASTRUCTURE – BLENDED CLIMATE FINANCE

GFA Climate & Infrastructure was established in Cape Town, South Africa in November 2018. It serves as a bridgehead for the Climate & Energy Cluster to provide consultancy services in the Southern African region in the context of international development cooperation, e.g. for the German Ministry of the Environment, GIZ and AFD, and to public and private clients. GFA Climate & Infrastructure focuses on structuring and identifying funding sources to catalyze blended finance by combining concessional and private sector funding for infrastructure related projects and programs that mitigate or adapt to climate change. Specific sectors include sustainable energy and energy efficiency, water and waste, green and circular economy, agriculture and food value chains, as well as urban mobility and long-distance transport, all of which are challenges in Southern Africa.

A key component of the success of GFA Climate & Infrastructure is to work with likeminded partners in the region based on the strategy of customizing local knowledge with access to worldwide developing country experience. Its network in the institutional investor community, local and international DFIs, commercial banks, municipal and Government Departments, and local consultancies in the climate space enables GFA Climate & Infrastructure to effectively develop its mandate. GFA Climate & Infrastructure is currently working on structuring and blending finance for green hydrogen fuel cells in the transport and mining sector, mitigating electricity transmission and distributions losses, the roll-out of electric buses in Cape Town, and promoting biogas in the slaugh-

terhouse industry. The company also advises the Western Cape Government on the roll-out of a municipal infrastructure program.

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GFA SOUTH EAST EUROPE – CLIMATE ACTION PLANNING AND MUNICIPAL ENERGY MANAGEMENT

GFA South East Europe focuses on implementing technical assistance projects in the field of climate and energy. Since its foundation in 2013, GFA South East Europe has established a broad network among regional stakeholders and accrued regional experience in supporting ministries and municipalities in energy and climate action. The experience ranges from policy advice for planning and development of strategic documents, as part of EU accession, up to support for municipal energy management, development of mitigation projects and identification of appropriate financing schemes, such as ESCO approach. Supporting GFA's work for EBRD within the EU funded Regional Energy Efficiency Programme for Western Balkans, GFA South East Europe was involved in the establishment of the policy framework for energy performance contracting and supporting pilot municipalities for development of ESCO projects. In scope of SECO Municipal Energy Efficiency and Management Project in Serbia, GFA South East Europe supports pilot municipalities in improving energy management by introducing the European Energy Award.

In cooperation with GFA Consulting Group, GFA SEE is involved in technical assistance and policy advice for development of strategic documents

for climate action within IPA projects "Climate Strategy and Action Plan" in Serbia and "Preparation of Long-term Strategy and Law on Climate Action" in North Macedonia. Within the work for UNDP in Serbia, GFA SEE supported design of capacity building projects and development of various tools, templates and methodologies for the deployment of biomass as part of municipal energy management.

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GFA ENTEC – SMALL AND MEDIUM HYDROPOWER

GFA Entec AG, based in St. Gallen, Switzerland, is GFA's energy engineering branch. It focuses on energy and climate projects with a particular focus on renewable energy and energy efficiency. GFA Entec, in partnership with GFA SEE and other partners, is currently involved in the Municipal Energy Efficiency and Management Project in Serbia, financed by the Swiss State Secretariat for Economic Affairs (SECO). GFA Entec manages the project's cross-cutting capacity building component in cooperation with the GFA C³ Unit for Better Learning. In Jordan, GFA Entec has conducted a pre-feasibility study on the utilization of the Mujib water reservoir as a pumped-storage plant with a capacity of about 215 MW, which accommodates the fast growing share of variable renewable energy in the national electricity grid. The project was part of the GFA implemented EU program Renewable Energy and Energy Efficiency Technical Assistance to Jordan.

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GFA Entec techno-economic study on pumped storage technology utilization at reservoirs in Jordan

SELECTED GFA CLIMATE AND ENERGY PROJECTS

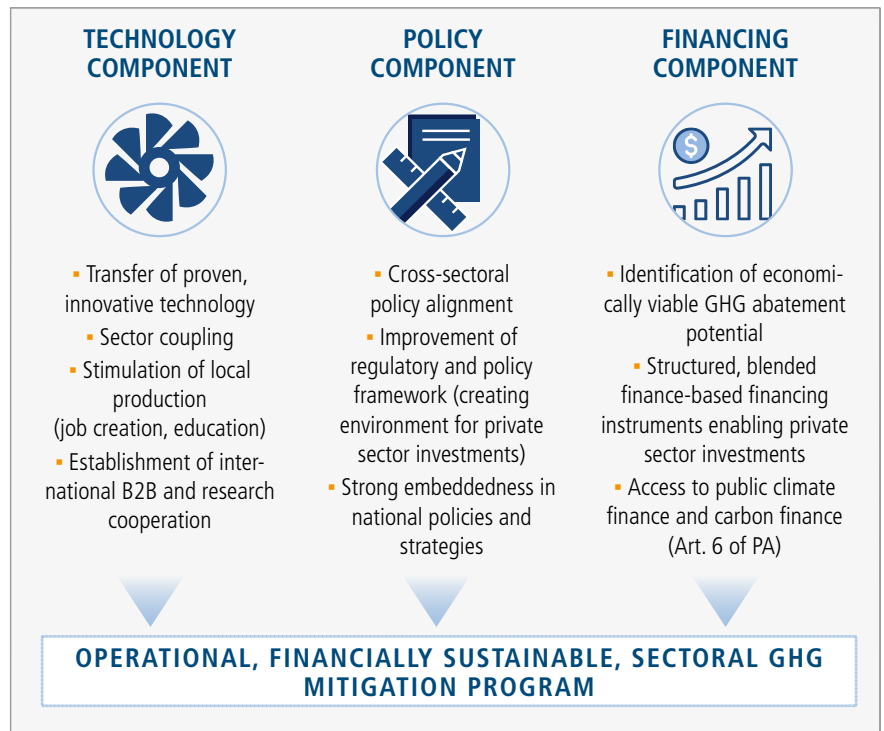
REACTIVE POWER COMPENSATION TO REDUCE TRANSMISSION AND DISTRIBUTION LOSSES IN AFRICA

On behalf of the German Ministry for the Environment, GFA assessed the potential reduction of energy losses in Sub-Saharan countries and related GHG emissions considering an enhanced uptake of reactive power compensation (RPC) equipment. The installation of RPC equipment at the premises of industrial facilities in four Sub-Saharan countries proved to contribute effectively to reducing high technical energy losses in transmission and distribution networks by improving the power factor, which in turn leads to energy savings and the reduction of GHG emissions (see graphic).

An insufficient regulatory framework and high capital cost are the main barriers for market penetration of the RPC technology in Sub-Saharan Africa. The pilot program funded by the German Ministry for the Environment in four countries aims at improving the countries' regulatory frameworks and helping them to define realistic unconditional emission reduction targets for the specific subsector. At the same time, a blended finance concept including performance-based carbon payments will assist these countries in setting and achieving verifiable, conditional NDC targets. GFA has recently been given the mandate to further support the implementation of this pilot program. The aim is to test future cooperation approaches under the Paris Agreement, which combine amendments to the regulatory framework with sector targets for the reduction of GHG emission, and a blended financing instrument that utilizes export credit insurance, concessional loans from DFIs and payments for the reduction of GHG emissions.

MUNICIPAL ENERGY EFFICIENCY AND MANAGEMENT PROJECT IN SERBIA

The SECO-funded Municipal Energy Efficiency and Management Project is implemented with the Ministry of Mining and Energy since 2018 and supports four Serbian municipalities in improving energy management and local climate action through the internationally recognized European Energy Award. GFA South East Europe together with GFA Entec and other partners support the European Energy Award and capacity building components of the project.



In addition, the project has been supporting investments in energy efficiency measures in 23 public facilities such as kindergartens and schools.

CLIMATE STRATEGY AND ACTION PLAN IN SERBIA

The Climate Strategy and Action Plan project is funded by the European Union through the Instrument for Pre-Accession Assistance with the Serbian Ministry of Environmental Protection. Since 2016, the project prepares a national cross-sectoral climate change strategy

and action plan. Comprehensive modeling is applied to analyse a set of scenarios exploring different cost-effective approaches. This leads to the identification of priority measures for emission reduction across selected sectors, i.e. energy, industrial processes and product use, land use, land-use change and forestry, agriculture, and waste. The strategy thus provides a policy framework for climate action in Serbia in compliance with international obligations and pledges on greenhouse gas mitigation laid down in the Paris Agreement and the EU accession process.



Modern windows provide good thermal insulation in buildings in Serbia

SELECTED GFA CLIMATE AND ENERGY PROJECTS

INTEGRATED SUSTAINABLE TRANSPORT SYSTEMS IN SMART CITIES IN INDIA

As part of the GIZ Integrated Sustainable Transport Systems in Smart Cities project, a GFA team supports three Indian cities on climate friendly and sustainable public transport. The project, 2018-2021, has been embedded into the Indian Smart Cities Mission active in three areas, i.e. planning and implementing sustainable urban transport projects, institutional performance and coordination, and learning and exchange formats. More specifically, the project team advises municipal corporations on the preparation of detailed project reports. Providing government officials with training parallel to project implementation allows partners to apply and practice newly gained knowledge. Touching on topics such as non-motorized transport and low-carbon mobility, GFA experts not only contribute to the New Urban Agenda in India and the Paris Agreement but also create tangible results. Safely riding bikes, accessing bus services and exploring off-beat footpaths are intended to become reality soon.

ENERGY INFORMATION SYSTEM FOR MADAGASCAR

GFA's Digital Innovation Unit together with GFA B.I.S. is developing an Energy Information System for a GIZ project in Madagascar, 2018-2019. Starting from low levels of electricity access, Madagascar has an ambitious energy policy. The project system provides the Ministry of Energy and Hydrocarbons of Madagascar with a tool for energy planning and decisionmaking. It monitors the changes in energy access, supply and demand of electricity, renewable energy



Sewage treatment plant in Palestine

and networks, and allows energy sector actors to plan future investments based on these data. The team of in-house experts from GFA and GFA B.I.S. has been collaborating closely with the Ministry's staff and the main electricity suppliers for data preparation, specification of the system, and capacity building.

WASTEWATER REUSE PROJECT IN PALESTINE

In waterscarce regions, one answer to climate change and changing rainfall patterns has to be more efficient water use or the use of alternative sources of water. GFA presently implements the KfW-funded Wastewater Reuse Project in Nablus, Occupied Palestinian Territories since 2019. Complying with national and international standards, wastewater from Nablus City is treated in a modern wastewater treatment plant so that it can be utilized for irrigation in agriculture. The project encourages farmers to engage in more intensive, irrigation-based farming and to grow high-value crops that generate a higher income

than traditional products such as olive trees. Water efficient and water saving irrigation techniques such as drip and sub-surface irrigation will be introduced to reduce evaporation and water losses by 2022. By using recycled water, farmers will become more independent of climate change impacts and have an opportunity to better plan production and revenues.

FORCLIME – FINANCIAL COOPERATION MODULE IN INDONESIA

The KfW-funded FORCLIME program, 2011-2020, aims at the implementation of strategies for forest conservation and sustainable forest management resulting in reduced GHG emissions from the forest sector, and improved living conditions of the impoverished rural population. It focuses on reducing forest-based carbon emissions through implementation of REDD+ measures at district level in selected pilot sites in Kalimantan. This includes support to community-based forest management, national park buffer zone management as well as improved forest management practices of active forest concession companies. GFA has aimed at demonstrating the viability of a pro-poor REDD+ mechanism in Kalimantan to decisionmakers and stakeholders, and to enrich the national and international debate on REDD+ with practical implementation experience and lessons learned. Another objective is to develop options within national and international carbon markets for compensation payments for reduced emissions in project sites through innovative and fair incentive payment schemes that recognize the effort made by communities to manage their forest resources in a sustainable way.



Indian cities suffer from heavy air pollution and traffic jams



Indonesian community member working in project tree nursery

RENEWABLE ENERGY AND ENERGY EFFICIENCY PROGRAM IN JORDAN

One of GFA's flagship energy projects is a EU-funded renewable energy (RE) and energy efficiency (EE) program in Jordan, 2016-2019. It contributes to the development and implementation of effective policies that allow Jordan to reach its respective targets by 2020. The large range of demand-driven activities cover various aspects of the energy sector including national and international policy dialogue, development of national EE and RE action plans, national energy forecasting, support to project development of several RE applications, and support to regulatory frameworks for EE in buildings and industry. As an example, the project has successfully assisted to tender 300 solar water pumps, supported the development of a 100 MW waste-to-energy project, and implemented a feasibility study on waterpumping energy storage. Moreover, energy managers in industry have been trained and certified, e.g. on energy data modeling and the use of TIMES software.

LEBANON EE & RE ENERGY FINANCE FACILITY (LEEREFF)

The LEEREFF project comprises an 80 million euro global loan financed by the European Investment Bank and AFD to foster RE/EE investments. Individual credit lines to five Lebanese Partner Financial Institutions (PFIs) allow for on-lending to private sector borrowers to invest in sustainable energy. LEEREFF, 2017-2019, aims at contributing not only to energy savings and the supply security of businesses, but also at supporting energy conservation, carbon emission reduction and climate change mitigation. GFA has been supporting the PFIs in implementing the LEEREFF on-lending infrastructure. The allocation of the available funds has been fast-paced. This is due to a subsidized interest rate and a surging gap between energy supply and demand. At the same time, there is an abundance of RE sources, particularly solar photovoltaic. Therefore, a large untapped potential for the facility lies in the replacement of conventional diesel-fueled energy generation by solar photovoltaic rooftop installations.

CLIMATE SENSITIVE WASTE MANAGEMENT IN SERBIA

Solid waste management plays a critical role in the fight against climate change as uncontrolled dumpsites are a serious contributor to increasing GHG emissions worldwide. As part of its EU accession efforts Serbia is taking up the challenge to reduce GHG emissions and move toward a circular economy. Since May 2019, GFA's Water & Sanitation Department and GFA South East Europe support municipalities and SMEs in three Serbian regions to move towards a circular economy in the framework of the Climate-Sensitive Waste Management Project of GIZ. As a circular economy needs to go beyond the mere separation of waste, the project approach aims at establishing a market for the collected and processed secondary raw materials. Accordingly, the GFA team focuses not only on the development of local waste management plans and improved collection practices, but supports SMEs in identifying new business models that utilize the collected secondary raw materials. Moreover, the team advises the Ministry of Environmental Protection and the national Chamber of Commerce to develop guidelines and activities to introduce circular economy principles in everyday life of Serbian citizens.



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GFA Consulting Group is a growing consulting organization active in international economic development. The main sectors of the company comprise agriculture & rural development, natural resources management & environment, climate change, energy, governance, public finance management, private sector development, education, skills & employment, financial systems development, health, digital innovation, monitoring & evaluation, water & sanitation.

Every year, GFA carries out around 300 projects and studies around the world.

GFA vision – to be the partner of choice for clients in our core service areas.

GFA mission – to improve the livelihood of beneficiaries through our professional services.

GFA core values – to offer high performance in service delivery, technical excellence in our main sectors, innovative approaches and products, and credibility with our clients when putting projects into practice.