

Green Growth Grows Around the World



**The Korea
Green Growth
Trust Fund**
2021 Annual Report

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KGTF Annual Report 2021

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Green Growth Grows Around the World



KGTF Annual Report 2021

Our Mission Footprint 2021	5
Message from the World Bank Group	7
Message from the Donor	9
2021 Highlights	10
Year in Review	14
Portfolio Overview	18
Monitoring and Evaluation (M&E)	20
Theory of Change and Results Framework	21
2021 Grant Program Outcomes	22

Up and Coming 24

Novel Protein: Insect Farming for Food and Feed for a Circular Green Growth Economy	26
Transforming Urban Transport to Support Green and Resilient Recovery—Leaders in Urban Transport Planning (LUTP)	28
Boosting the Blue Economy Potential in Morocco	31
Utilization of Treated Water for the Heating System in Ulaanbaatar City	34

KGTF Impacts in 2021 38

Leveraging Digital Technologies for Scaling Up Climate Smart Agriculture in Kenya	40
Strengthening Utility Capabilities by Capacity Building and South-South Knowledge Exchange	42
Building Drought Resilience in the South of Angola Through the Use of Geospatial Information and Nature-Based Infrastructure	46
Green Mobility for Luang Prabang and Seam Reap	48
Myanmar, Cambodia, Sustainable Solid Waste & Plastic Management	50
Leveraging Technology to Modernize Agricultural Sector	52
Smart-City Digital Approaches for Sustainable Urban Mobility in Latin American Cities	55
Egypt Green Transport Master Plan and Data Management System to Support Digital	58
Innovative Technology to Support Brahmaputra-Jamuna River Economic Corridor Development	62
Greening Urban Development in Bamako, Mali	64
Renewable Energy Scale-Up to Support Green Growth in Pakistan	68
Green Growth Diagnostics and Analytics for Building Back Better—RISE Framework	70
Newly Launched Programs	75

Communication and Dissemination 78

In the News	80
Dissemination of Grant Outputs	82
Communications and Public Outreach	84

Financial Review 90

Annexes 92

ANNEX 1 Annual Progress Report Summary	93
ANNEX 2 KGGTF Portfolio	94
ANNEX 3 Institutions and Partnerships, K-PARTNERS	102
ANNEX 4 Photography	109
Abbreviations	111

Since its inception, funds disbursed by KGGTF have **leveraged over \$17 billion** in World Bank lending and external co-financing, which **represents an impact of \$173 in lending for every \$1 invested.** In 2021, KGGTF supported 15 new grant activities totaling over \$10 million across 22 countries. The KGGTF portfolio has increased to a total of over \$98 million supporting 180 grant activities around the world.

About KGGTF

The Korea Green Growth Trust Fund (KGGTF) is a partnership between the World Bank Group and the Republic of Korea. It is an implementation trust fund working to operationalize green growth strategies.

What do we mean by operationalizing green growth strategies? We define it as identifying and customizing green growth policies, technologies and governance structures for countries looking to achieve their sustainable development objectives. While each country's situation and circumstances may differ, the green growth framework is flexible and relevant in prioritizing economic development while protecting the environment and increasing shared economic prosperity. Green growth recognizes that the complex challenges facing every country are intertwined and that a strategic, multi-sectoral approach that incorporates disruptive technologies and transparent governance models can work to solve multiple problems in tandem.

The crisis wrought by COVID-19 has impacted us all and is causing many to rethink business as usual. The pandemic has brought into high relief the vulnerability of our communities, the strained ecosystems and the need for smart and strategic long-term planning to tackle the challenges facing every country around the world. In the face of these challenges, the World Bank's Korea Green Growth Trust Fund (KGGTF) has continued to build on its record of promoting green growth and advancing a knowledge agenda to "build back better." Despite the complexities of green growth and sustainable development, integration and collaboration lie at the heart of the green growth approach.

In 2021, as KGGTF completes its ninth full year of operation we are energized by surging demand from World Bank staff and client countries for identifying and implementing green growth solutions. While

the pandemic has altered previous ways of working, we remain committed to finding innovative ways to initiate partnerships, deepen dialogue and collaborate on projects around the world. The Trust Fund has fully adapted and maximized the opportunities of the remote working environment by increasing collaboration with our Korean partners, World Bank staff and client countries. This past year, with the aim to increase collaboration we expanded our annual Korea Green Innovation Days (KGID) event to become a biannual event produced in both Spring and Fall every year.

Since its inception, funds disbursed by KGGTF have **leveraged over \$17 billion** in World Bank lending and external co-financing, which **represents an impact of \$173 in lending for every \$1 invested.** In 2021, KGGTF supported 15 new grant activities totaling over \$10 million across 22 countries. The KGGTF portfolio has increased to a total of over \$98 million supporting 180 grant activities around the world.

The KGGTF mandate is unusual within the World Bank as it spans seven Global Practices to seed holistic green growth solutions across Agriculture and Food, Energy and Extractives, Environment, Natural Resources and the Blue Economy, Digital Development, Transport, Urban, Land, and Water. This multi-sectoral mandate mirrors that of the green growth approach and its solutions.

Together, we stand ready to help drive green growth recovery and build a more sustainable future.



MESSAGE FROM THE WORLD BANK GROUP

The Republic of Korea and the World Bank Group have been active partners on issues of sustainability and green growth for a decade. The KGGTF has become a strong and solid bridge between these two trailblazers who are striving toward a more sustainable and prosperous world. Korea is for many a true inspiration.

The transition from a resource poor, low-income nation into a global powerhouse and technological leader is extraordinary and an example of what is possible when countries dream big and act with purpose. To date, Korea is the only country to have transitioned from a recipient of World Bank aid to a donor nation within one generation. Its transformation is encouraging for countries and individuals around the world.

Its current approach to economic progress articulated in the *Green New Deal* and *Digital New Deal* are widely regarded as best-practices to be emulated by other countries. There is much that Korea can teach the rest of the world and it is a priority of the KGGTF to provide both the knowledge and the resources to make this happen.

The ambition of the Korean Green New Deal is reflected in the World Bank Group's **Green, Resilient, and Inclusive Development** (GRID) plan. This comprehensive approach to building sustainability was endorsed by the Development Committee, which is the ministerial level forum that represents the nearly 200 member countries of the World Bank Group and the International Monetary

Fund. The GRID approach makes official the commitment to actively work to integrate green, resilient, and inclusive development—green growth by another name—into World Bank projects and investments.

Green, Resilient, and Inclusive Development (GRID) is at the very core of KGGTF's mission, and the Trust Fund has played a pivotal role in shaping the World Bank's understanding of operationalizing green growth strategies and solutions. The partnership between the World Bank and the Republic of Korea, established a decade ago, has had a tremendous impact on green infrastructure investments around the world.

On behalf of the World Bank and our client countries, it has been an honor to collaborate with the Republic of Korea and we look forward to further strengthening our collaboration for many years to come.

Richard Damania
*Chief Economist,
Sustainable Development Practice Group,
The World Bank*



MESSAGE FROM THE DONOR

The recent global pandemic has shone a harsh light on the vulnerabilities and inequalities around the world and, in too many cases, it is those individuals in vulnerable communities whose livelihoods and health are the first to be impacted by rising sea levels, droughts, fires, and famines accelerated by climate change. Despite these many challenges and setbacks, we are encouraged to see growing interest and commitments from the global community to sustainability, resilience, and shared economic prosperity in their recovery plans.

Against this backdrop, the Korean government highly acknowledges the importance of green recovery and is supporting all possible measures to developing countries including its commitments amounting to around US\$136million to the Korea Green Growth Trust Fund (KGGTF) so far.

The KGGTF has played a vital role in initiating and facilitating green growth ideas and knowledge sharing between Korea, the World Bank, and World Bank client countries. We are pleased to have a new hybrid virtual/physical model for the flagship Korea Green Innovation Days (KGID) event, holding not only the Spring event, but also adding a KGID event in the Fall to continue momentum, build dialogue and advance collaborations. Taking this opportunity, the Korean government expects that the Korean partners as well as the World Bank's staff are actively engaging in sharing its accumulated knowledge and experience with developing countries. In this regard, we would like to express our thanks to the KGGTF team who are striving to prioritize and strengthen relationships that add great value to green growth investment programs.

In addition, we are pleased to have contributed to the World Bank's Green, Resilient, and Inclusive Development (GRID)

priorities and commitments. The integration of green growth ideas, technologies and solutions within the World Bank's priorities has been our aim since the establishment of KGGTF nearly a decade ago.

While the challenges facing the world can seem daunting, we continue to believe that by building constructive relationships and increasing collaboration within the global community, together we can positively change the world. In these challenging times, when resources are most strained, and many countries are forced to diminish their contributions, the Korean Government has increased its recent IDA-20 contribution commitment by 14% to \$516 million in 2021.

By doing so, the Ministry of Economy and Finance (MOEF) emphasized the role of innovative technologies to tackle climate change and major development challenges which lies ahead of the global community. While the challenges facing us are enormous, it is through shared goals and collaboration that we can innovate our way to a sustainable, inclusive, and prosperous future. We look forward to the next chapter of our partnership with the World Bank.

Jun Ho Shin

*Director of Development Finance Division,
Ministry of Economy and Finance, Korea*

2021 Highlights

COVID-19 and Global Interest in Sustainable Solutions

Since the start of the COVID-19 crisis the World Bank Group has committed over \$157 billion to fighting the impacts of the pandemic. As countries now look to recover and regain momentum there is increasing demand to build back in a manner that supports economic growth, job creation and shared economic prosperity, in a manner that is sustainable. The global community is increasingly committed to pursuing climate action and reaching the Sustainable Development Goals (SDGs), but the specifics of how exactly to achieve the SDGs continue to prove elusive to many countries. Recognizing the challenge of identifying the best approach, investments and technologies needed to achieve sustainability—or green growth—the World Bank stepped up and developed a diagnostic tool to evaluate each country’s specific situation and the most effective approach to achieve sustainability.



The COP26 summit took place in Glasgow in October–November 2021, bringing parties together to accelerate action towards the goals of the Paris Agreement and the UN Framework Convention on Climate Change. **COP26 aimed** to secure global net zero by mid-century and keep 1.5 degrees within reach, to protect communities and natural habitats, and mobilize finance by working together as a global community. These goals **align directly with the ultimate development objective of the KGGTF, to achieve sustainable development through green growth.** Every dollar invested into World Bank green growth programs supports countries to meet these goals.

Roadmap for Sustainability

The World Bank has developed a comprehensive approach to pursue poverty eradication and shared prosperity with a sustainability lens through a **Green, Resilient, and Inclusive Development (GRID)** approach. The GRID approach is a **transformation in how the Bank views development** and emphasizes that countries should focus on the *quality* of economic growth, instead of just the quantity of growth. To support the GRID approach, **KGGTF funded the development of a comprehensive diagnostic to support countries track progress along the dimensions of GRID—Green, Resilient, and Inclusive Development.**

The GRID diagnostic consists of three sections. The first section is a benchmarking tool to diagnose where a country lies across the different dimensions of GRID—Green, Resilient, and Inclusive Development. A database of over 70 relevant indicators has been compiled from various global datasets. The result is a data-driven methodology for determining where countries actually lie across the GRID dimensions, and which areas countries should focus on to ensure sustained, and high-quality growth.

The second section drills deeper into the “pinch points” identified in the Benchmarking to identify their drivers and their economic, social, and environmental implications. To do this, off-the-shelf analyses and spatially explicit datasets have been developed to visualize hotspots and trends and make the case for why these challenges matter for development.

The final section develops a tailored set of solutions. To do this, the team collaborated with experts across the World Bank to come up with a set of policy and investment priorities to move the country more towards the ideals of GRID, and address the issues raised in the prior sections.

The diagnostic is ongoing and has been completed in over 45 countries. It is being used to inform key World Bank strategies at the country level and to identify multi-sectoral development solutions. Read more on page 70.



Climate Change Action Plan 2021–2025

The World Bank Group Climate Change Action Plan (CCAP) 2021–2025 guides the Bank Group’s approach to integrating climate and development over the next five years. **The new Action Plan represents a shift from efforts to “green” projects, to greening entire economies, and from focusing on inputs, to focusing on impacts.** The Action Plan supports countries and private sector clients maximize the impact of climate finance, aiming for measurable improvements in adaptation and resilience and measurable reductions in GHG emissions. The Action Plan examines the vital importance of natural capital, biodiversity, and ecosystems services and will increase support for nature-based solutions, given their importance for both mitigation and adaptation.





Identifying Solutions and Developing Partnerships

Korea Green Innovation Days (KGIID) is the World Bank’s annual green growth knowledge sharing event. Leading experts in climate change, economic development and green growth practitioners from the Republic of Korea, representatives from key government ministries, institutes, and private companies come together to share ideas, best practices and actionable steps to implement green growth. In 2021, an additional session was delivered to the grant teams to strengthen their grant proposals by understanding the KGGTF grant application selection process, identifying potential solutions, and technical innovations.



Greening the Post-Covid Recovery event was both held in-person and virtually. The event focused on solutions for countries looking to build back better. In alignment with the event’s theme “Greening the Post-COVID Recovery” KGGTF prioritized grant applications which would scale up green approaches to building back better and bringing bigger impacts to a broader region. KGGTF’s \$10 million funding envelope for the 2021 grant funding cycle focused on ‘Greening the Post-COVID Recovery’, prioritizing grant proposals that applied green growth approaches to support developing countries to rebuild their economies post-pandemic and strengthen future pandemic preparedness.



Partnership Week was virtually hosted by KGGTF and MOEF as a follow-up event to build on foundations laid during the Spring event and to further establish partnerships and collaborations between 320 leading experts and practitioners from World Bank teams, Korean partners, and client countries. KGIID Partnership Week, which took place in October 2021, was also a timely opportunity to hear from Dr. June-Yi Lee, lead author of the IPCC 6th Assessment Report, about climate change scenarios and potential aggravated effects as well as the urgent need for immediate climate actions before the high-profile COP 26 event took place in Glasgow at the end of the month.

KGIID Fall also differentiated itself from KGIID Spring as the event provided 15 new grant teams with an opportunity to host break-out sessions and introduce their grant programs. After the announcement of Year 9 KGGTF Grants in early September, KGGTF conducted 1-1 individual onboarding meetings with the new grant teams and encouraged them to explore new partnerships. The KGIID Fall event organized 22 breakout sessions including 12 grant sessions led by 15 newly awarded grant teams.



Year in Review

January

The 21 teams awarded KGGTF Year 8 Grants completed their onboarding meetings.

New grants included energy in Ethiopia, transportation in East Africa, air quality in the Kyrgyz Republic, climate smart agriculture, food security and drone solutions. The grant teams introduced how to engage with client countries and tackle challenges on the ground using green growth strategies and solutions supported by KGGTF.

February

KGGTF & Green Growth Knowledge Platform (GGKP) Joint Webinar #1—Can a Doughnut Help Us Recover From COVID-19? (Feb 24)

KGGTF and GGKP jointly hosted a webinar to discuss Doughnut Economics and explore a new economic model that operates “in the space between a social foundation and an ecological ceiling.” World Bank experts shared their views on how the doughnut approach could help to build back better from COVID-19. KGGTF and GGKP strengthened bilateral collaboration to promote green growth knowledge sharing and activities.



March

Virtual Knowledge Exchange on Geospatial Information Management (Mar 15-Apr 9)

KGGTF supported a four-week Virtual Knowledge Exchange: “Strengthening Geospatial Information Management: Using the Integrated Geospatial Information Framework.” The World Bank Open Learning Campus (OLC), KPOK, and WBG Korea Office URL team collaborated to provide the Knowledge Exchange webinar series three times throughout the year (Jan 18-Feb 12, Mar 15-Apr 9, and Oct 4-26).



April

Korea Green Innovation Days 2021 (Apr 21-22)

KGGTF and Korea’s Ministry of Economy and Finance (MOEF) co-hosted the 2021 Korea Green Innovation Days (KGID) under the theme *Greening the Post-COVID Recovery*. KGID provided a platform for green growth experts to network, exchange knowledge, and learn about innovations in Post-COVID Green Growth and Green, Resilient, and Inclusive Development (GRID).

KGGTF Year-9 Call for Proposals Opened—Greening the Post-COVID Recovery

KGGTF opened its Year-9 Annual Call for Proposals at KGID with a \$10 million funding envelope. KGGTF grants supported inclusive green growth knowledge, investments, and capacity building programs. The focus for 2021 was Greening the Post-COVID Recovery.



May

KGGTF and GGKP Joint Webinar #2—How to Make a Green New Deal (May 26)

KGGTF and GGKP co-hosted a Joint Webinar to hear from experts on how South Korea, the US, and Pakistan developed national Green New Deals and how the European Union planned to become the world’s first “climate neutral block” by 2050. Policy experts discussed how Green New Deals were developed in different national and regional contexts.



June

RISE Diagnostics—Resilience, Inclusion, Sustainability, and Efficiency

The RISE diagnostics were completed in over 40 countries including Vietnam, Bangladesh, Egypt, Tunisia, Ghana, Kenya, Argentina, Peru, Montenegro, and Uzbekistan. The RISE diagnostics help countries translate challenges into green growth opportunities and implement the principles of Green, Resilient, and Inclusive Development (GRID).



Story Map Series Launch—Solid Waste Management (SWM) solutions for Mountainous Regions

KGGTF launched a Story Map about solid waste management in the mountainous regions of India, Nepal, and Pakistan. The beautiful landscape of the snow-capped mountain regions is becoming degraded by trash

and untreated solid waste and is now so bad it is negatively impacting tourism—a key source of revenue for the region. The story map provides a visual trip to the three countries where the World Bank examined SWM issues and challenges and recommended sustainable solutions for the ecologically fragile areas.



July

Launch of KGGTF Annual Report 2020

KGGTF launched its 2020 Annual Report to show how KGGTF responded to COVID-19 and supported a multi-sectoral approach for green growth and solutions to challenging issues around the world.



Story Map Series - Korea Green Innovation Days (KGID) 2021

KGGTF launched a Story Map about KGID 2021: Greening the Post-COVID Recovery. It features discussions and in-depth technical workshops on sophisticated financing, technical innovations, and strategies on how to build back better. The Story Map shows how to implement green growth solutions in agriculture, energy, environment, ICT, transport, urban, and water sectors.

KRIHS Interview with Hyung Gun Wang, KGGTF Program Manager

Korea Research Institute for Human Settlements (KRIHS) works closely with KGGTF on programs related to housing and urban research, territorial planning, and land management. Dr. Hyung Gun Wang had an interview to discuss long-term partnership between the World Bank and KRIHS.



Year in Review



August

KGTF & GGGI Joint Webinar Series (Aug 11-12)

KGTF and Global Green Growth Institute (GGGI) co-hosted three joint webinars on transportation solutions, landscape solutions, and energy solutions. Countries recognized the need for smart, sustainable solutions to unremitting infrastructure challenges. Technical and policy experts discussed how to achieve these innovative solutions.

September

Korea Green Innovation Days (KGID) Partnership Week 2021 (Sep 27-29)

KGTF and Korea's Ministry of Economy and Finance co-hosted KGID Partnership Week 2021. The three-day virtual event brought together more than 250 experts and provided 22 breakout sessions. The event served as a platform to continue and deepen partnerships between the World Bank and K-Partners.



Story Map Series - A STEP Up for Egyptian Industries: Egypt Mandates Higher Energy Efficiency Standards for Electric Motors

KGTF launched a Story Map about Egypt's Smart Technology and Energy Efficient Production (STEP) program. The Egyptian Ministry of Trade and Industry (MoTI) issued a Ministerial Decree to enforce labelling of motors and mandating higher energy efficiency standards for electric motors to support the country's transition to a greener economy. The decree resulted from the Smart Technology and Energy Efficient Production (STEP) program initiated in partnership with KGTF, IFC and the Korean government to support the MoTI.



Announcement of 15 Year-9 Grants (Sep 7)

KGTF and the Ministry of Economy and Finance announced 15 new projects. The total funding of US\$10.15 million supported new projects in fulfillment of the World Bank's vision of Post-COVID Green Recovery and Korea's Green New Deal. The projects are designed to address post pandemic challenges and facilitate green growth and recovery.



Joint Webinar Series #1 - KGGTF and Africa Drone Forum Team (Sep 22)

KGTF and Africa Drone Forum Team launched the first joint webinar to discuss "enabling drone operations" for the civilian and humanitarian use of drones in the African region. The session explored elements of enabling drone ecosystems and highlighted the need for involving all kinds of stakeholders to ensure success.

October

Story Map Series - Real Time Traffic in the Philippines

KGTF launched a Story Map about Open Transport Partnership between World Bank Data Lab and the Cebu City Government. The task team developed a prototype open-source platform for collecting traffic speed data from taxi drivers' mobile phones and generating real time traffic information.



Joint Webinar Series #2 - KGGTF and Africa Drone Forum Team (Oct 20)

KGTF and Africa Drone Forum hosted the second joint webinar to explore the economic and societal rationale for introducing drone technologies to complement the current transport and logistics systems. Experts shared insights on the scaling-up of operations within Malawi and the DRC.



November

KGTF Knowledge Note - Green Transition in South Korea

KGTF published a new Knowledge Note, Green Transition in South Korea, authored by Dr. Hyungna Oh, examining Korea's green growth model in 2010s and the Korean Green New Deal and strategies in 2020s. The Knowledge Note emphasizes local governments, the private sector and a carbon price for the success of the Korean New Deal.



Meeting with Members of Korea's National Assembly (Nov 5)

Richard Damania, Chief Economist of the Sustainable Development Practice Group, and Hyoung Gun Wang, Program Manager of Korea Green Growth Trust Fund (KGGTF), held bilateral meetings with a delegation of three lawmakers from Korea's National Assembly in Washington DC. Richard Damania shared his thoughts on World Bank's Climate Change Action Plans and GRID as well as KGGTF achievements on green ODA and post-COP26 way forward.

December

2021 Award from Deputy Prime Minister of Korea (Dec 31)

Hyoung Gun Wang, Program Manager of Korea Green Growth Trust Fund (KGGTF) at the World Bank, received a 2021 Award from H.E. Nam-ki Hong, Deputy Prime Minister and Minister of Economy and Finance of the Republic of Korea for his outstanding dedication and commitment to national economic development. The award shows recognition of the performance that KGGTF achieved in building strong green growth partnerships between the World Bank and Korea and promoting green growth throughout the world.



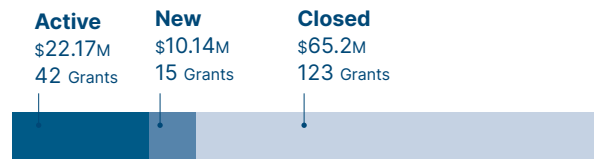
Portfolio Overview

All dollar amounts are donor approved amounts in US dollars.

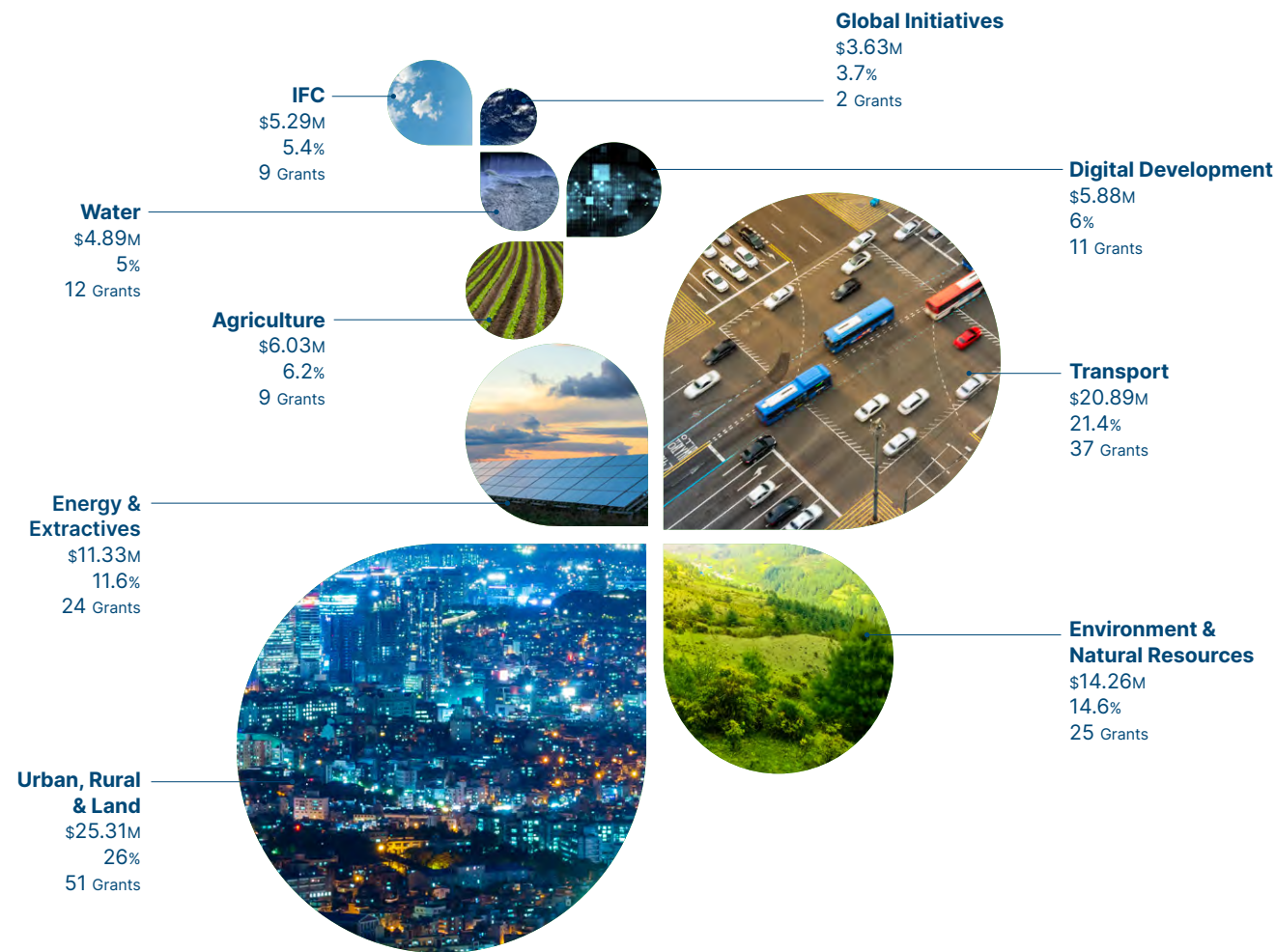
Portfolio by Grant Status

Fund status as of 2021

180 NUMBER OF GRANTS
\$97.5M GRANT APPROVED AMOUNT



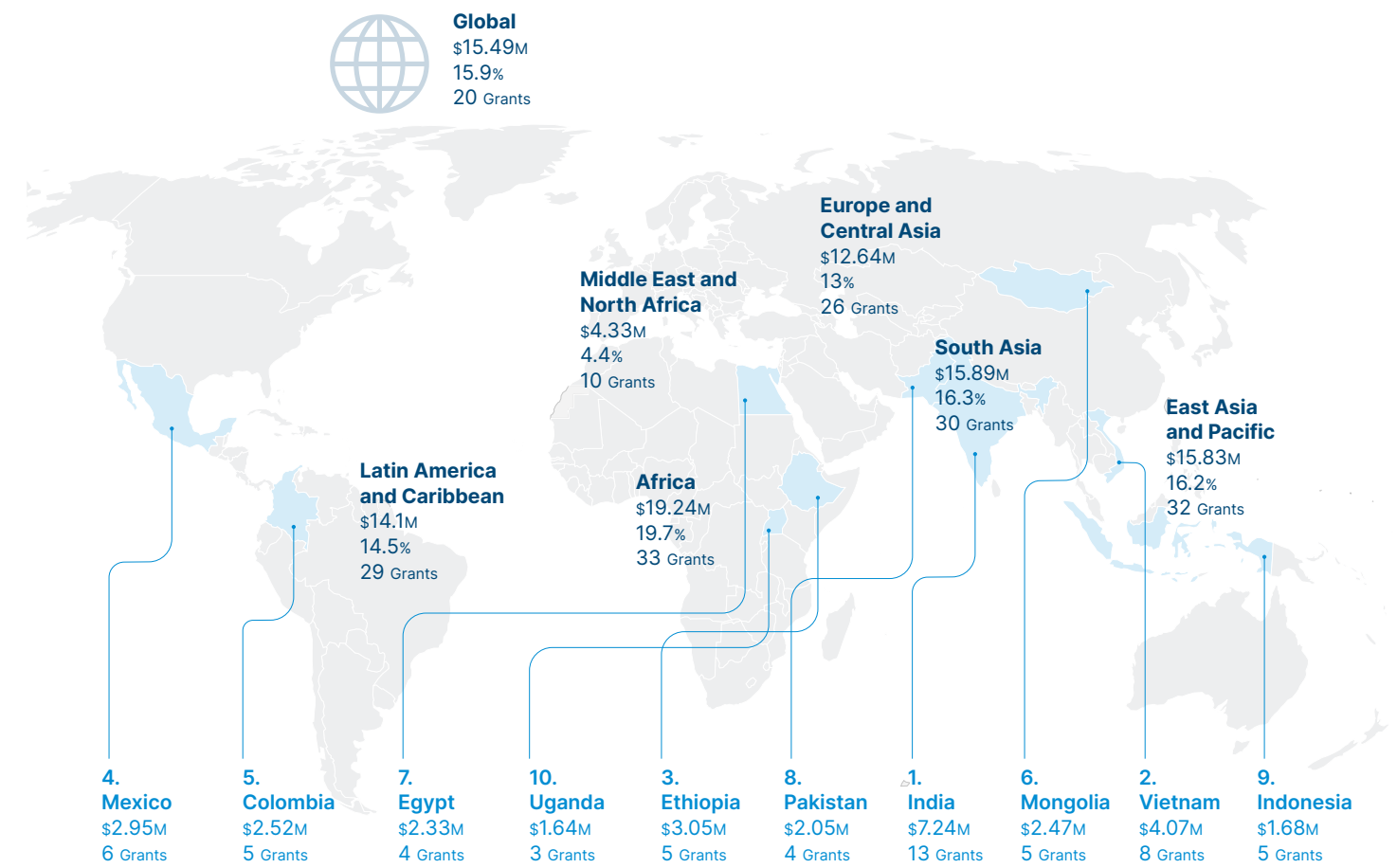
By Sector



By Impact Scale

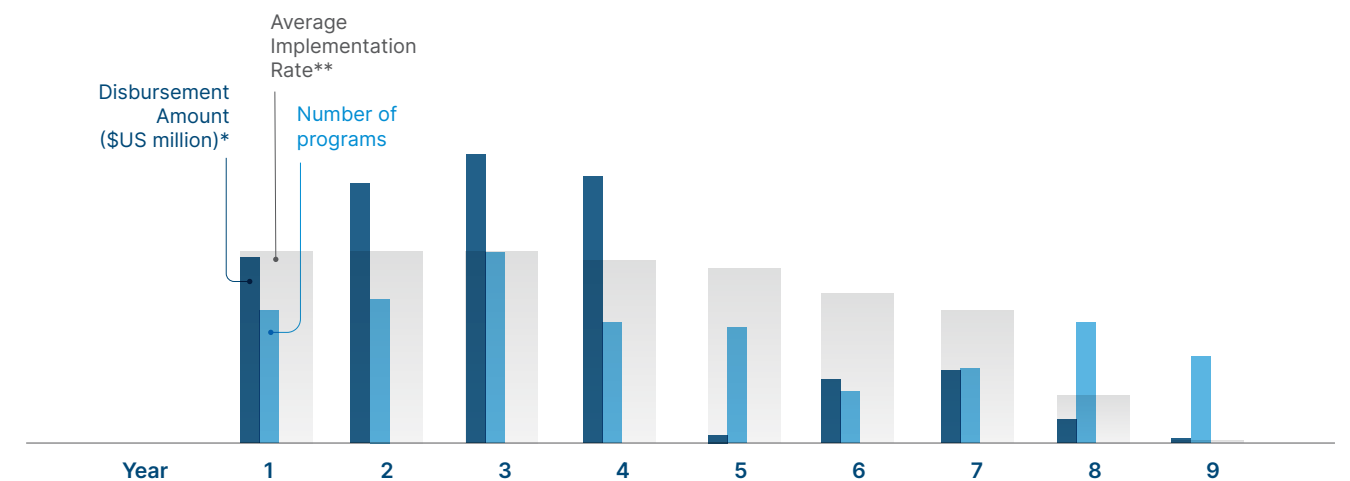


By Region and Top 10 Countries in Grant Approved Amount



Disbursement

Overall Disbursement by 12/31/2021



* The implementation rate = (total disbursement + commitment amount) / donor approved grant amount

** Year 9 grant's earliest disbursement start date is 10/20/2021

Monitoring and Evaluation (M&E)

The KGGTF Team continues to strengthen and expand its monitoring and evaluation activities to assess the performance of its grant programs. Informed through these M&E activities, KGGTF can better support all grant awardees to successfully achieve their expected outputs and outcomes, and more accurately evaluate results and impact at both the grant and Trust Fund level.

Continuous progress tracking and assessment of performance and impacts were implemented during 2021 through the following activities:

- Monthly monitoring of grant disbursement and expenses for timely identification of issues, consideration of grant extension requests, and provision of support to grant teams on a case-by-case basis.
- Individual onboarding meetings with all new grant teams covering grant management and reporting, delivery of outputs and outcomes, visibility and communications plans, and proposed partnerships, including support that KGGTF can offer to help grant teams achieve their program goals.
- Facilitation of introductions and connections with K-Partners for collaboration and knowledge sharing, including technical engagements and knowledge exchange programs.

- Grant progress tracking and reporting via the KGGTF Online Grant Tracking System (Dashboard) which facilitates the Annual Progress Report (APR) and accurate assessment and analysis of performance at individual grant, portfolio and Trust Fund level.

The **Annual Progress Report (APR)** summarizes the status of grant activities and tracks grant awardees' progress towards achieving the expected outputs and outcomes set out in the approved grant proposal. It helps identify any current or anticipated issues, delays or changes to the planned activities approved in the grant proposal and provides an opportunity for grant awardees to request KGGTF action or support during grant implementation. Analyzing data and experiences from KGGTF grants and program activities will contribute to improved design, implementation, quality, and impact of green growth investments across the World Bank and client countries.

“Considering some delays at early phase on data collection and in capacity building activities due to Covid-19, there was a need for an extension of the closing date of the grant from December 2021 to May 2022, so that all tasks can be completed as originally planned, including capacity building activities. The request from the team to extend the grant closing date has been approved by KGGTF.”

TTL for Grant Program 'Green Mobility for Luang Prabang and Seam Reap'

“The team will seek the KGGTF team's help to prepare the knowledge visit to Korea and discuss whether the second extension is needed based on the COVID situation.”

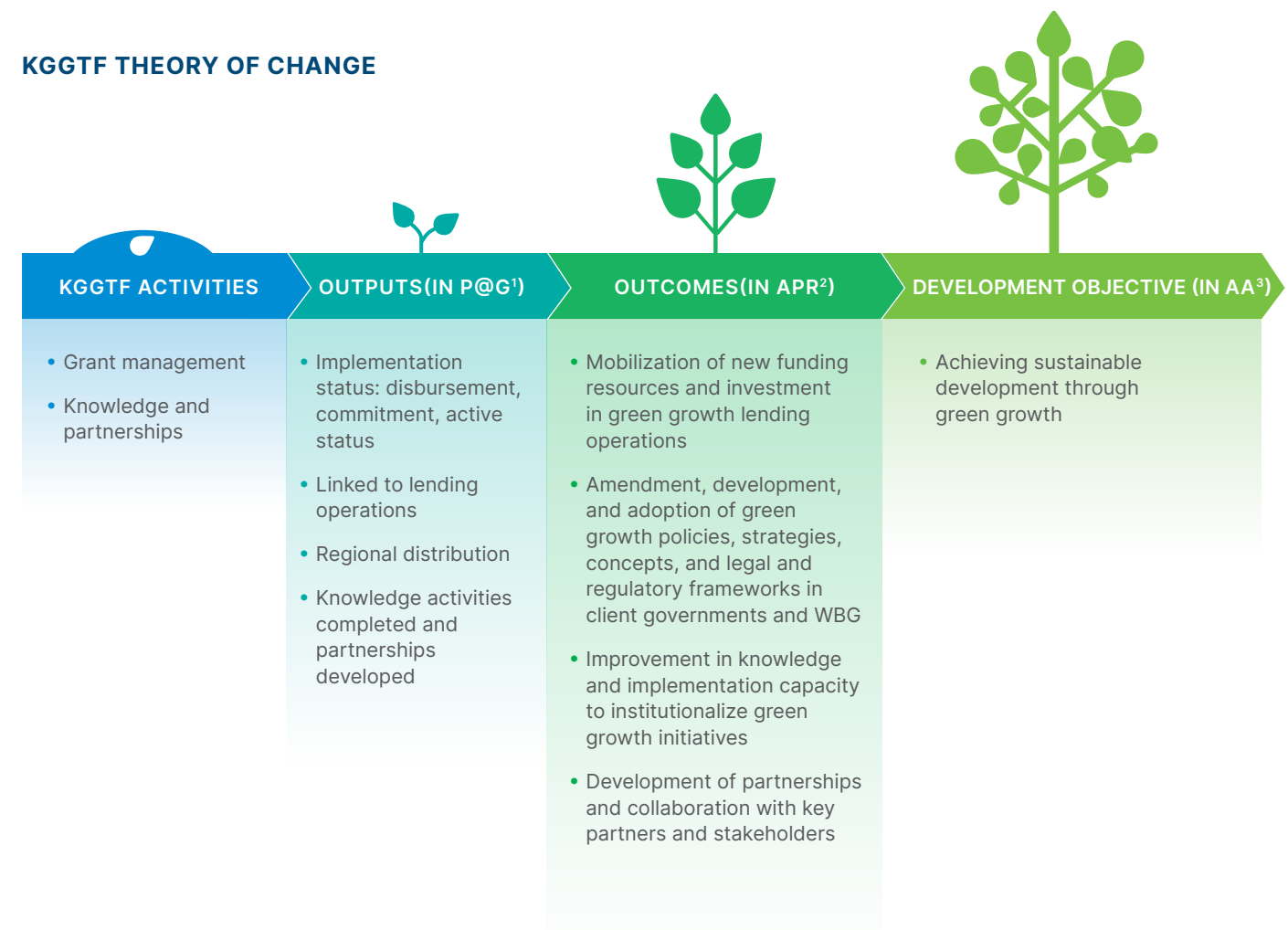
TTL for Grant Program 'Action on Circular Economy for Green Growth in Uzbekistan and Kazakhstan'

Theory of Change and Results Framework

KGGTF envisions a Theory of Change with the ultimate development objective of achieving sustainable development through green growth. At the core of KGGTF's Theory of Change and Results Framework are four Outcome pillars, used to measure grant results and impact as part of the Trust Fund's monitoring and evaluation activities:

1. Mobilization of new funding resources and investment in green growth lending operations.
 2. Amendment, development, and adoption of green growth policies, strategies, concepts, and legal and regulatory frameworks in client governments and WBG.
 3. Improvement in knowledge and implementation capacity to institutionalize green growth initiatives.
 4. Development of partnerships and collaboration with key partners and stakeholders.
- These outcomes are catalyzed through grant program outputs, which are produced through KGGTF funding, grant management activities, sharing of knowledge, and the development of partnerships.

KGGTF THEORY OF CHANGE



¹ The Portfolio-at-a-Glance (P@G) report

² Annual Grant Progress Review of KGGTF grant teams

³ Administration Agreement of the KGGTF, 2012

2021 Grant Program Outcomes

Here are some examples of grants from the 2021 active portfolio achieving results and having impact around the world:

1

Mobilization of new funding resources and investment in green growth lending operations.

Some programs attracted private sector investment in green growth operations. For example, the grant “Improving Readiness for Energy Efficiency Investment in Vietnam’s Industries” directly supports implementation of the Vietnam Energy for Industrial Enterprises Credit Line, which is financed by IBRD and private sector banks. The grant also contributes to the implementation of another World Bank lending project “Vietnam Scaling Up Energy Efficiency” [P164938] that aims to support the government of Vietnam’s overall energy conservation and greenhouse gas emission reduction objectives.



2

Amendment, development and adoption of green growth policies, strategies, concepts, and legal and regulatory frameworks in client governments and WBG.

The grant “Pollution Solutions for Lao PDR’s Green Growth Policy and Investment Agenda” demonstrates KGGTF’s role in influencing the development and adoption of green growth policies at national level. Various products supported by this program have provided evidence-based recommendations, equipping government organizations with the mandate, incentives, and resources to support the country’s transition towards green growth.

Input from the KGGTF program resulted in the government continuously revising and improving the laws and regulations to reflect a greener path. One notable example is the development of the National Plastics Action Plan.

In Cambodia, the grant “Sustainable Solid Waste and Plastic Management” showed its positive impact on influencing the development of a plastic sub-decree by providing key evidence on plastic pollution priorities and plastic policy options. Under this same grant, KGGTF funding also covered a policy assessment to analyze existing and proposed national policies, legislation, and plans on plastic production, collection and recycling in the Philippines. The study provided integral input and feedback to the current National Plan of Action for Prevention, Reduction, and Management of Marine Litter (NPOA-ML) - Zero Waste to the Philippines waters by 2040.



3

Improvement in knowledge and implementation capacity to institutionalize green growth initiatives.

Examples showing efforts to improve green growth knowledge and implementation capacity through knowledge exchange activities, training, and dissemination of knowledge can be found throughout the 2021 active portfolio. For example, the grant “Strengthening capacity in climate resilience for water infrastructure development in Uganda” focused on raising awareness of green growth concepts and operationalization among its target groups, while building capacity in planning and implementation through trainings in collaboration with Korea’s K-water Academy. Site visits and study tours to Korea also helped program beneficiaries learn important green growth concepts and better understand its operationalization.

Approved in 2019, the grant “Geospatial Information Management for Green Growth Operationalization” program has actively disseminated green growth knowledge related to the geospatial sector through an e-learning course on “Strengthening Geospatial Information Management: Using the Integrated Geospatial Information Framework.” In collaboration with K-POK, a series of virtual knowledge exchange events were also organized highlighting the cases of geospatial information for green growth operationalization. These activities attracted a great number of participants, raising the awareness of green growth concepts in the geospatial sector and introducing ways to incorporate geospatial technology into green growth activities.



4

Development of partnerships and collaboration with key partners and stakeholders.

KGGTF grant programs have demonstrated success both enabling new partnerships and strengthening existing relationships with external partners. One example is the grant “Action on Circular Economy for Green Growth in Uzbekistan and Kazakhstan” which has reported multiple collaborations with partners including KEITI, KEXIM, GGGI, UNDP, EU, AIIB, ADB, JICA, Canadian Facility, IFC, and various embassies that were critical to support the grant activities, outputs and outcomes.

Another example is the grant “Capacity building and technical Learning workshops on Energy storage to Accelerate energy Transition (CLEAN)”, which has helped facilitate new partnerships in Bangladesh, Tanzania, and Ethiopia on energy storage.

In the case of the grant “Regional E-Mobility and Battery Storage Programmatic Technical Assistance for Pacific Island Countries and Territories”, strong partnerships with Korean organizations such as Korea Electric Power Corporation (KEPCO), Seoul Metropolitan Government (SMG), and Korea Battery Industry Association (K-BIA) have been developed and become significant in project implementation and knowledge transfer.



Up and Coming

Making Headlines

Programs funded by KGGTF typically run for two to three years. Some programs produce significant results during implementation, but in some cases the full impact of a grant is realized years after the program is completed. This section features grants approved in 2020 that are in mid-implementation, gaining traction and producing early results. Follow their progress by checking back next year to find out more.





Dorte Verner
Lead Agriculture
Economist

Novel Protein: Insect Farming for Food and Feed for a Circular Green Growth Economy (IF4FF)

Challenge

The project aims to create knowledge of insect farming for food and feed and increase food security in Sub-Saharan Africa. The program pilots insect farming to generate new knowledge on novel insect-based protein through resilience building through climate-smart insect-protein production, processing, and commercialization. This will increase access to high-quality nutrition for people and animals while creating resilient-green jobs and livelihoods and growing African economies sustainably through a green-circular economy methodology.

This project will pilot disruptive and green-agriculture-production technologies to produce nutritious food and organic fertilizers rapidly, including mainstream Korean experiences and inclusive-green-growth knowledge that may contribute to increased protein access.



Program Goal

The program is building on a recently concluded program and publication of the book *Insect and Hydroponic Farming in Africa*. In this second phase, the knowledge generated will be piloted, and the task aims to learn from the Korean experience, a global leader in insect farming.

Read more on the topic [Insect and Hydroponic Farming in Africa](#)

ACTIVITIES IN PROGRESS

- Working with the Rural Development Administration (RDA) the team is developing training programs and manuals on Insect Farming for Food and Feed (IF4FF).
- Implementation of insect farming structures and organization of farmer groups.
- Establishing pilot programs on insect production and processing facilities.
- Identifying and articulating the most appropriate policies and regulations. The insect sector in Africa is still in its infancy and for the program to succeed well designed policies and regulations will be essential.

RESULTS TO DATE

The team has raised \$450,000 from the China World Bank Partnership Facility for insect processing.

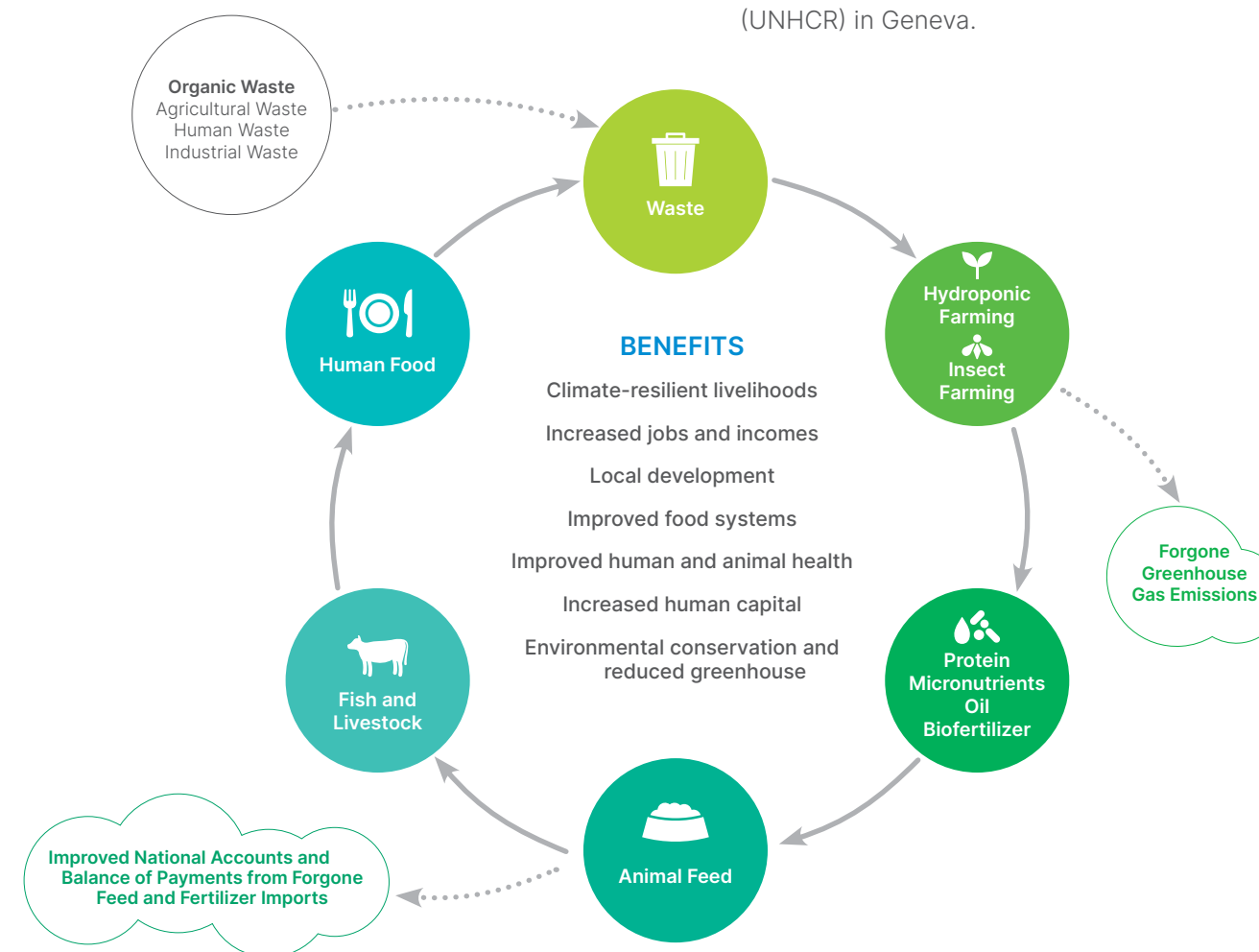
Partnerships & Collaboration

- Korean Rural Development Agency (RDA) to rapidly increase food-and-nutrition security, increase knowledge of how to rapidly produce food with GCE methodology, and provide solutions to address food insecurity crisis.
- Korean Program of International Agriculture (KOPIA) to provide trainings for vulnerable population such as women and youth.

- Korea University and North Jeolla University to assist in developing questionnaires for surveys and contribute to knowledge gathering.
- Korean Insect Farming Companies such as Entomo for knowledge sharing on processing and sustainable supply chains.

The team also plans to cooperate with Global Green Growth Institute (GGGI) on waste collection technologies.

- United Nations High Commissioner for Refugees (UNHCR) in Geneva.



Creating a Circular Food Economy

Insect farming has the potential to quickly produce nutritious human food and animal feed that could provide tremendous health, social, economic, climatic, environmental, and food security benefits across Africa. Insect farming has the potential to create a circular food economy by reusing society's organic waste, including agricultural and certain industrial waste, to produce foods for humans, fish, and livestock without the need for vast amounts of arable land or water resources.

This type of food, if done correctly, could meet many of the continent's social, economic, environmental, and food security challenges. Additionally, it is economically competitive with conventional agriculture in the resource constrained environments of African fragile, conflict, and violence (FCV) countries, while generating a fraction of the climate and environmental damage.



Arturo Ardila Gomez
Lead Transport Economist

Georges Darido
Lead Urban Transport Specialist

Transforming Urban Transport to Support Green and Resilient Recovery—Leaders in Urban Transport Planning (LUTP)

Challenge

Cities around the world are grappling with the challenge of how to provide more inclusive access to employment, education, and health care, while reducing travel costs, crashes, climate change impacts, air and water pollution, and the consumption of scarce resources like land and fuel. Urban congestion, rising emissions and harmful air quality are fundamental targets for improving quality of life with green growth recovery.

Particularly in the aftermath of the COVID-19 pandemic, a green recovery via the implementation and maintenance of sustainable, resilient, efficient, safe, and inclusive urban transport systems is critical for the client cities of the World

Bank. In these cities, the majority and the most underprivileged depend on public transport and walking for day-to-day life regardless of the growing motorization. Addressing transport challenges in the broader demographic context, economic growth, pandemic recovery, and climate action require holistic approaches to urban transport planning, governance, management, and operations implemented by strong, competent, and cooperative institutions. The Leaders in Urban Transport Planning (LUTP) program provides interactive training workshops for awareness and capacity building to tackle these issues among transport leaders from developing cities.



“Tap Tap”: The primary form of public transport in Haitian cities. This Spring, Haiti will host one of the first LUTP workshops since COVID-19.



Chance to Revisit

The COVID-19 pandemic restrictions provided an opportunity for the team to revisit its curriculum, add new contents to better acknowledge the dynamic digital trends in urban mobility, and emphasize the role of urban mobility in meeting sustainable development goals for the environment, public health, and social inclusion.

Program Goal

LUTP provides capacity-building workshops and training material in partnership with World Bank teams which are implementing urban transport advisory and lending operations. Workshops leverage project co-financing to tailor instruction to the needs of local policymakers.

Impact on the Ground

The program convenes a community of practitioners, focusing on mid- to senior-level managers and **policy makers** in urban transport planning, governance, management, and operations **in cities around the world**. The LUTP program is actively collaborating with partners within the World Bank regions and in other global organizations **to build a pipeline of training workshops**. These workshops will help the grant achieve its objective to support capacity building in client countries on sustainable urban transport development, including green and resilient approaches to climate change mitigation and adaptation to natural hazards and public health crises.

Supporting Greater Access

The team is modernizing the program’s delivery practices—developing a comprehensive self-paced online training course in partnership with the World Bank Online Learning Campus to enable access to the foundational knowledge on urban transport planning; a new wave of ‘hybrid’ virtual and in-person LUTP workshops from 2022; and an updated LUTP website with a better platform for knowledge dissemination and partnership building.

The grant supported the addition of two new case studies on Seoul, South Korea to the LUTP curriculum, highlighting the critical role of transformative technology and resilience for urban transport systems.

NEW COURSE MATERIALS

With KGGTF funding, the LUTP team is adding the following materials to its curriculum:

- Transformative Transportation Development—a case study on Seoul’s Smart City agenda and Transport Operation & Information Service (TOPIS).
- Resilient Urban Transport Systems—a case study on Seoul’s people-first vision for urban mobility planning and its connections to resilience and public health.
- A new self-reading module on the use of technological platforms for multimodal integration (e.g., mobility-as-a-service).
- A self-reading module on e-mobility for public transit.
- A self-reading module on the response of public transport systems to COVID-19.

Coming Soon

In Spring 2022, participants from Turkish municipalities—such as Istanbul, Ankara, Izmir, Kocaeli, Trabson, Kahramanmaraş, Düzce, Mersin, Samsun and Gaziantep—will participate in an LUTP workshop focused on diagnosing urban transport challenges and formulating Sustainable Urban Mobility Plans (SUMPs) (P175806).

Also in Spring 2022, participants from Haitian cities will join an LUTP workshop focused on institutional and governance frameworks for urban transport. This workshop will accompany the start of the first urban transport project in the country (P177210; in final preparation).

Partnerships & Collaboration

- Korea Transport Institute (KOTI)
- Seoul Metropolitan Government (SMG)
- Africa Transport Policy Program (SSATP)
- World Resources Institute (WRI)—Mexico and Africa
- Singapore Land Transport Authority (LTA) Academy
- European Union

Looking Ahead

This grant is laying the foundation for a new wave of LUTP engagements. The new curriculum and modalities of instruction provide multiple avenues for participation and will build an even stronger community of practice in urban transport planning in developing cities around the world. The program has just launched a new website and learning materials and has begun delivery of the first training workshops since COVID in cities in Turkey and Haiti. Additional e-learning courses are in production.

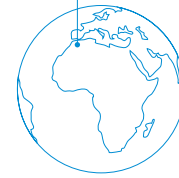
Additionally, a mentorship and alumni engagement program are being established to facilitate interactions with policymakers who have attended the KGGTF-funded workshops to continue to support them in designing and implementing smart and sustainable green transportation plans.

WORKSHOPS
Accra, Ghana
 March, 2022
 Hybrid virtual and in-person format

Ankara and Istanbul, Turkey
 June, 2022

Seoul, South Korea
 November, 2022

Requests from other countries:
 Maputo, Mozambique
 Luanda, Angola
 Bamako, Mali
 Nairobi and Mombasa, Kenya



Sandrine Georgette
Christiane Jauffret
 Senior Natural Resources Management Specialist

Boosting the Blue Economy Potential in Morocco

Challenge

A large part of Morocco's economy is based on its coastal and marine wealth. With a coastline facing the Mediterranean Sea to the north and the Atlantic Ocean to the west, Morocco sits in a privileged geographic position. Unfortunately, the outlook for the health of the country's marine and coastal resources is troubling with a sustained and alarming decline in the health and resilience of its coasts and marine resources. These trends are likely to be exacerbated by the impact of the COVID-19 pandemic crisis as the economic impact for Morocco is estimated to be minus 4% GDP (by the World Bank) for 2020.

Morocco requested World Bank support to promote Blue Economy including financing and technical expertise to the Regional Coastal Management Plans and to develop the **Marine Spatial Planning (MSP)** system in line with international best practices.

Program Goal

The grant aims to provide the **analytical underpinnings for the development of a Marine Spatial Planning (MSP) system**, and the identification of innovative financing mechanisms for the Blue Economy. The expected results of this program are increased capacity in the government for the development of policies that favor sustainability, and increased intra and inter-governmental coordination, which is an essential component of coastal planning for seascape management.

ACTIVITIES IN PROGRESS

- Development of Marine Spatial Planning System: Support to develop a Moroccan policy, institutional and stakeholder platform, a roadmap and pilot MSP plan in Morocco.
- Development of Sustainable Financing Mechanisms for the Blue Economy: Investment climate analysis and framework for Blue Economy financing; Development of prototypes for blue Economy financing.



Impact on the Ground

The program is supporting an MSP process to establish a new Marine Protected Areas for fisheries management which is a government priority, part of the Halieutis strategy.

The program is additionally supporting capacity building of the Department of Maritime Fisheries to better manage the Marine Protected Areas (MPA) based on Marine Spatial Planning (MSP) process and raising awareness throughout the cross-sectoral stakeholder platform.

Current Activities

Working to develop a Moroccan policy, institutional and stakeholder platform the team identified and engaged the main stakeholders to be involved in the Marine Spatial Planning process to support the creation of Marine Protected Areas for fisheries management with the Department of Maritime Fisheries (DPM) in April-May 2021.

A series of in-depth consultations, led by the Department of Maritime Fisheries supported by the National Institute of Fisheries Research, with fisheries professionals in Larache and in Agadir between June and November 2021, occurred to identify the pilot area of the MSP process.

Program-for-Results

In today's world, development is about results and institutional strengthening. Everyone—government officials, parliamentarians, civil society, and the private sector—is demanding programs that help deliver sustainable results and build institutions. To address this growing demand, the World Bank developed the Program-for-Results (PforR) financing instrument. Focusing on results, PforR's unique features include using a country's own institutions and processes, and linking disbursement of funds directly to the achievement of specific program results. Strengthening capacity within the country, enhances effectiveness and efficiency and leads to achievement of tangible and sustainable results.

Kickoff workshop in Agadir to launch the MSP process in December 2021: The workshop invited a broad range of stakeholders from all sectors (fisheries and aquaculture, environment, tourism, water and forests, culture, civil society), with appointed focal points at both the national and regional levels.

Stakeholder Engagement Plan

A stakeholder engagement plan has been developed to define the best way to gather information, collect information and discuss MSP outputs, particularly through participatory workshops during the MSP process. Engaging with multi-stakeholders is especially crucial for success in coastal programs.

Next Steps

All gathered data and information (from participatory mapping workshops as well as on oceanography, biodiversity and ecosystems, fisheries, aquaculture, shipping and ports, coastal erosion, pollution, population, and income) will be processed to **establish a comprehensive diagnostic of the pilot site** including mapping and zoning of areas with the greatest potential for the creation of Marine Protected Areas for fisheries management in April 2022.

In parallel, analytical work is being undertaken to support the development of innovative instruments for financing the blue economy, particularly relevant to sectors involved in the MSP process.

Partnerships & Collaboration

- Korean Maritime Institute (KMI)
- Ministry of Oceans and Fisheries (MOF)
- Intergovernmental Oceanographic Commission (IOC UNESCO)
- Direction InterRégionale de la Mer (DIRM)

Influencing World Bank Lending Operations

The program helped leverage funding to develop a new operation through a new Program-for-Results on the Blue Economy.

Looking Ahead

Based on the MSP process, various tools are being developed including a roadmap to further strengthen the MSP process and a guideline on how to use MSP approaches to share the pilot experience across the country and facilitate upscaling.

“I would like to thank the South Korean government for funding this pioneering project at the national level that will improve the living standards of fishermen and support coastal communities in diversifying their economies and creating new job opportunities.”

*Mr. Bouchta AICHANE, Director of Marine Fisheries and Aquaculture
Opening speech, Kickoff meeting, December 2, 2021, in Agadir*





Rochi Khemka
Senior Water
Resources
Management
Specialist

Utilization of Treated Water for the Heating System in Ulaanbaatar City

Challenge

Every year the area in the eastern part of Ulaanbaatar is covered with ice overflow, formed by untreated wastewater from the National Mental Health Center and spring runoff. This affects the informal “ger” households, which have less than half the income level of the rest of the city, yet bear much higher health costs. The overflow mixes with household wastes and flushes into local streams or infiltrates the groundwater, putting the entire city’s drinking water at risk.

Simultaneously, an expansion in the city’s energy requirements is intensifying groundwater abstraction, which is constraining already scarce freshwater resources. To tackle such multi-sectoral challenges, the Mayor’s Office of Ulaanbaatar requested the 2030 Water Resources Group of the World Bank to identify green growth and circular economy solutions to put Mongolia on a more sustainable pathway.

Program Goal

This project aims to support more sustainable pathways for Mongolia’s growth trajectory. Treating melting ice overflow and untreated wastewater from the National Mental Health Center for water supply augmentation linked to the expansion plans of the Amgalan Thermal Power Plant in the eastern part of Ulaanbaatar. These measures are expected to save up to 24% of freshwater used in power generation and improve the standard of living for 343,000 individuals.

Activities in progress

- **Stakeholder engagement and concept development:** Creation of stakeholder traction for green growth approaches, Development of concept paper and methodology on green growth approach and wastewater treatment and reuse.
- **Technical and socio-economic feasibility study** for green growth solutions.
- **Policy development and dissemination:** Policy recommendation on green growth and circular economy approaches. Development of knowledge products on water-energy nexus for dissemination to stakeholders.

Impact on the Ground

- Stakeholder engagement and concept development: Development of the concept note, approval of the concept note by 2030 Water Resources Group’s Multi-Stakeholder Platform, which brings together a range of stakeholders from government, private sector and civil society, including the key stakeholders relevant to this project; Development of methodology paper draft with stakeholder inputs.
- Private sector engagement: private sector companies such as MCS Coca Cola, Amgalan thermal power plant, Tiger, and Vitsamo companies, to participate in the project and support wastewater treatment and reuse across their own facilities.





“Ministry on Environment and Tourism has been focusing on the treatment and reuse of wastewater as a groundwater protection measure. In 2018, we developed national standards to reuse wastewater for nine activities such as firefighting, cooling in thermal power plants, coal washing, road dust suppression, recycling solid waste, operation and management of water supply and sewerage systems, and irrigation. In alignment with this policy priority and in cooperation with the 2030 Water Resources Group hosted by the World Bank, we have started studying the feasibility and options to reuse industrial wastewater from MCS Coca Cola for Amgalan thermal plant cooling processes.”

Ms. Khorolmaa, Head of the Water Policy and Coordination Department of the Ministry of Environment and Tourism of Mongolia



“Residents living near Shar Khad and the Amgalan thermal plant are under constant risk of ice overflow in all seasons of the year. Once the project on reusing treated water of this ice overflow for the thermal plant is finalized, the risk of ice overflow will be solved.”

Ms. Nyamtseveen, the Head of the Engineering Structure Department of the Mayor's Office of Ulaanbaatar

Stakeholder engagement across the public and private sectors is essential for success

Ministry of Environment and Tourism, Ministry of Construction and Urban Development, Ulaanbaatar Mayor's Office, Ministry of Energy, Amgalan power plant, MCS Coca Cola, Vitsamo, Tiger, Mongolian Academy of Sciences and others - the team has developed various partnerships with key stakeholders.

- Introduction of green growth concept in Mongolia: supporting knowledge and implementation capacity to institutionalize green growth initiatives in the country.
- Reflection of green growth solutions in the national water policy and management plan: As part of 2030 WRG's engagement activity with government of Mongolia, green growth solutions for industrial water supply are now reflected and inserted in the national water policy and management plan.

“The proposed project has a number of benefits for all entities. Therefore, I believe the project will be implemented successfully and our company is fully supportive of the proposed solutions.”

MCS Coca Cola LLC, Ms. Enkhjargal, Head of Water Supply Department

Partnerships & Collaboration

- Korea Environmental Industry and Technology Institute (KEITI). KEITI led a pre-feasibility study team in Mongolia and incorporated international best practices of green growth approach in water-energy nexus.
- MCS Coca Cola, Mongolia office
- Amgalan power plant
- Ministry of Environment and Tourism
- Ministry of Energy
- Ulaanbaatar Mayor's Office
- Vitsamo company
- Tiger company
- Mongolian Academy of Sciences

Looking Ahead

Mongolian Ministry of Energy, with support from the Government of Republic of Korea, has planned power plant construction projects in ten regions across Mongolia.

The program will be a significant step towards implementing water-energy nexus opportunities in other regions of the country. By involving large water users such as beverage and textile companies, the project will accelerate the shift to green technology and solutions, which will significantly reduce water pollution and water scarcity risks in Ulaanbaatar.

KGTF Impacts in 2021





Vinay Vutukuru
Senior Agriculture
Economist

Beryl Agengo
Consultant

Leveraging Digital Technologies for Scaling Up Climate Smart Agriculture in Kenya

Challenge

The average productivity of major crops in Kenya has not increased at a significant rate annually. For example, maize productivity has increased cumulatively only by 17% over the last 10 years, resulting in an annual increase of about 1.7%. There are multiple reasons why productivity growth has been slow. These include a) Farmers had low access to extension and advisory services b) Farmers also lacked access to good quality inputs, credit, and good quality data analytics that they could use. To reach their full potential, farmers need access to the latest technologies and data. Governments, however, have faced challenges in applying these technologies at scale because the farmers were mostly dispersed smallholders, making it difficult for the government to reach them and provide the required services at farmer's doorstep.

The **Kenya Climate Smart Agriculture Project** (KCSAP) is a \$250 million IDA credit project that aims to build resilience to climate change and variability in the agricultural sector and the National Agriculture Rural Inclusive Growth Project (NARIGP) is a \$200 million IDA credit that aims to enhance productivity and profitability of farmers in Kenya. With the objective of ensuring that one million farmers that are part of KCSAP & NARIGP projects leverage digital technologies to enhance productivity, profitability and resilience, the "One Million Farmer Platform" was launched by the Ministry of Agriculture and the World Bank in April 2019. Formal partnerships were signed between 24 Agri-Tech startups and 27 counties in Kenya and these firms have already initiated engagements with the farmers.

Program Goal

Building on KCSAP, NARIGP and the **One Million Digital Farmer Platform (OMFP)**, this project aims to offer technical support and catalytic grant support to both the private and public sectors, thereby ensuring that digital technologies are leveraged for scaling up green agriculture technologies in Kenya. Given the strong existing ecosystem of investments on the ground and the commitment of the Government of Kenya, a multipronged approach working concurrently with both the private sector and public sectors will facilitate scaling up green growth by leveraging digital technologies.

The project will support scaling up climate-smart and green agriculture technologies by leveraging digital technologies with at least 100,000 farmers. Other expected outcomes include enhanced capacity within the Ministry of Agriculture at the national and county levels, KALRO on the use of Big Data, AI, and the overall Digitization Agenda in Kenya. Application of Korea's expertise in climate-smart agriculture by mainstreaming climate-smart and green technologies in Kenya is also expected from this grant.

Impact on the Ground

The program helped attract new funding—both internal and external—for WBG lending operations. The program will leverage the investment from a project - National Agriculture Value Chain Development Project that has been approved by the World Bank board in March 2022. The program further attracted additional funding from a PHRD trust fund.

The program successfully built capacity in Kenya on green growth planning and implementation through training and technical assistance. Technical assistance from this program enabled the national and county government officials to access relevant tools on climate smart agriculture and allowed them to promote efficient and resilient program implementation. **This support enabled the development of green growth strategies and policies at national, municipal, or sector levels.**

Partnerships & Collaboration

- Korea Rural Community Corporation (KRC) and Korea Agency of Education, Promotion and Information Service in Food, Agriculture, Forestry and Fisheries (EPIS) on Smart Farming and Green House Technologies.
- Ministry of Agriculture, Food and Rural Affairs (MAFRA) on Climate Smart Data Platforms and green growth and organic certification for value chains.

- Korean ecosystem including institutions like the Plug & Play Tech Centre, Korea Telecom and other Korean Startups in the Digital Agriculture Space and MAFRA will be brought to the collaboration approaches.

- Microsoft

- Mercy Corps Agrifin team on startup support.

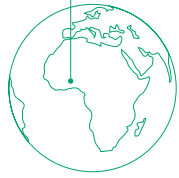
"Having received training programs from different stakeholders regarding the use of various technologies, I have been able to appreciate the use of the same to help my farmers adopt the same better."

Ms. Nabea, a county government staff member from Kiambu county, has ensured that her county is now paired with more Disruptive Agriculture Technology (DAT) cohort members who offer solutions to the farmers. Kiambu county is working with six solution providers providing data analytics, market access, productivity, and financial inclusion.



Supporting National and Country Governments

To support the national and county government teams improve their technical capacity, the team held various workshops and meetings encouraging cross-learning. Technical assistance was provided through multiple channels, including deep-dive meetings with World Bank teams, peer-to-peer learning, discussions with key institutions including Mercy Corps Agrifin, Microsoft, Dalberg, World Economic Forum, and other institutions.



Kwawu Mensan
Gaba
Practice Manager

Strengthening Utility Capabilities by Capacity Building and South-South Knowledge Exchange

Challenge

Clean, reliable and affordable power supply is crucial to growth, economic development and achievement of the Sustainable Development Goals. While 1.1 billion people are still living without electricity, **nearly four billion lack reliable, round-the-clock supply**. In many countries, particularly those of West Africa, the **existing infrastructure is not able to operate at its designed capacity due to the lack of technical**

expertise. Recently commissioned renewable power plants and battery storage systems are curtailed and cannot deliver needed output to the grid, while transmission and distribution networks have not been maintained and have deteriorated. The **technical expertise gap reduces the ability of grids to absorb green power** and become resilient to a changing environment and eventually robs emerging economies of the promise of inclusive growth.



Program Goal

The objective of this grant is to provide **comprehensive technical and operational training to demonstrate that energy gaps could be closed, and to maximize existing assets by returning them to a good condition and lay the groundwork so new networks can be green, resilient and inclusive**. To do so, the grant funded two major activities. The first activity helped utilities improve their technical capacity to plan and invest in more resilient grids capable of absorbing more renewable power, providing universal access to electricity and reliably providing power 24/7. The second sought to enhance the internal capacity of utilities to operate power networks in an efficient manner and improve grid supply by introducing modern concepts of system operations.

Impact on the Ground

The program helped strengthen the development of **green growth strategies and policies at national, municipal, or sector levels**: Based on survey results, individual utilities and regulators in West African Power Pool (WAPP) member countries, as well as at the WAPP regional level, changed policies around planning and procurement to use more efficient, and more complex, tools, equipment and programs.

Additionally, the program **raised awareness of green growth concepts and operationalization among the target groups**. The program built capacity of target groups in green growth planning and implementation through training and technical assistance: The workshop

introduced green growth concepts in planning, procurement and operations and **helped inform policy changes at individual utilities** that promoted more efficient and resilient supply.

The activity will ensure that principles of resilient and inclusive green growth are embedded in the staff of Sub-Saharan network operators, who can then evaluate additional generation capacity and network growth needs with this framework in mind as they reach towards sustainable development and address climate change. Feedback received from operational teams, particularly in Sub-Saharan Africa, indicates a lack of institutional knowledge needed to ensure the continued implementation of resilient and inclusive green growth outside the scope of Bank projects. **Embedding these principles will ensure that environmental, social and economic issues are addressed simultaneously and improve the quality of life.**

The **major outcome of this grant is enhanced capacity for planning and operations** of changing power systems by **ensuring that utilities have the technical tools needed to provide clean and reliable power and a pool of talented engineers** who can work immediately on utility-scale issues.

Partnership & Collaborations

- Korean National Committee of CIGRE - partnership with CIGRE global
- Korea Power Exchange (KPX)
- West African Power Pool (WAPP)



“Deep change of mind of the participants at the training: made us dream and comfort us in the ‘Yes we can!’”

Dr. Sirandi Moraogue, Director of Electrical System Operations, HV Transport Networks, SONATREL, and May 2019 workshop attendee

Influencing World Bank Lending Operations

WBG financing has long stressed the importance of technical assistance to build client capacity, and thereby increase the efficiency of lending operations. By teaching the principles of inclusive and resilient green growth to system operators, **the activity has changed mindsets around how to solve problems.** For example, **the operation of the CLSG Interconnector** (and its additional financings) as well as the **North Core Regional Interconnector will be developed by the system operators who attended the training.**

This grant is linked to roughly \$60,000,000 in lending.

Looking Ahead

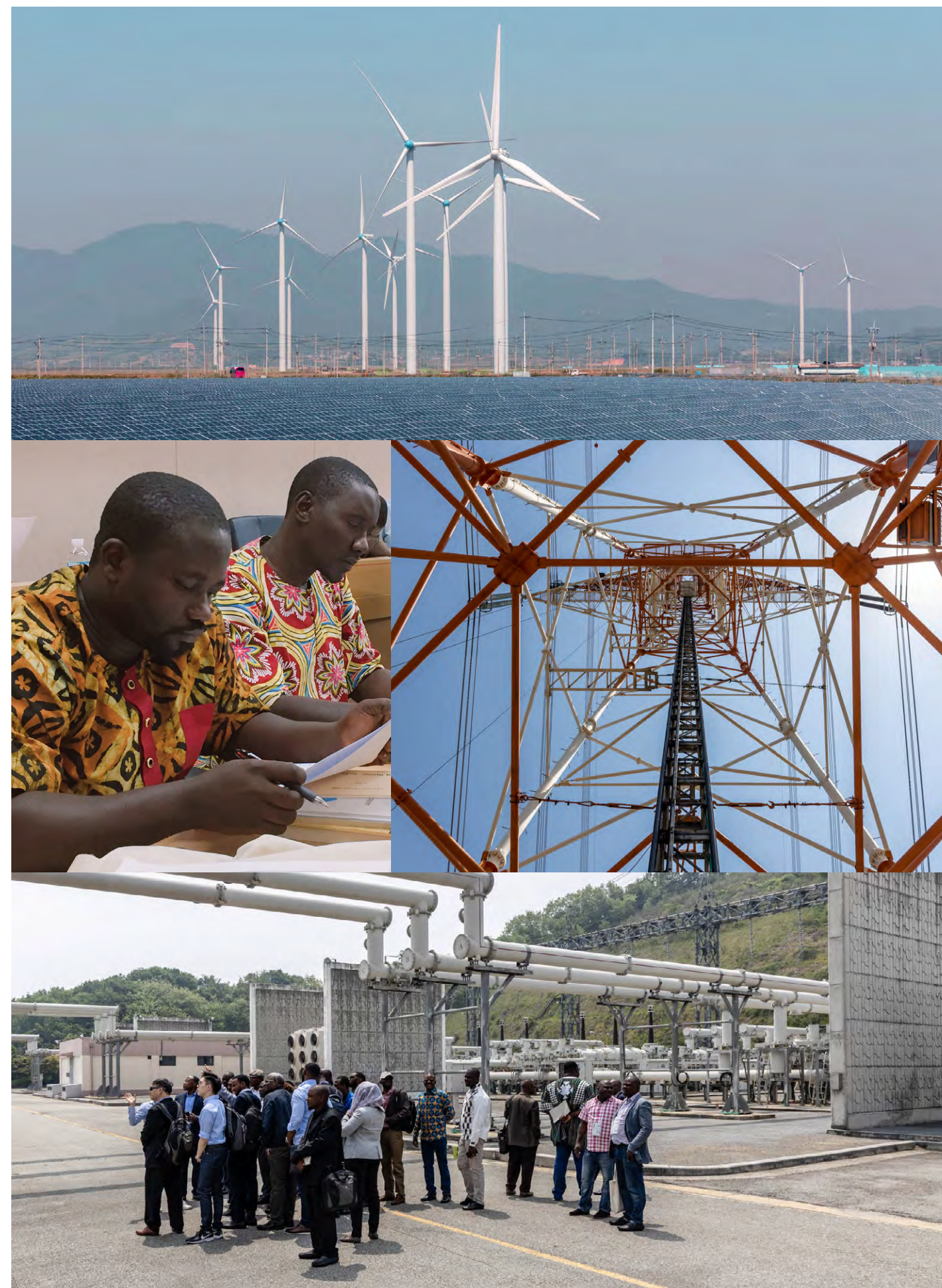
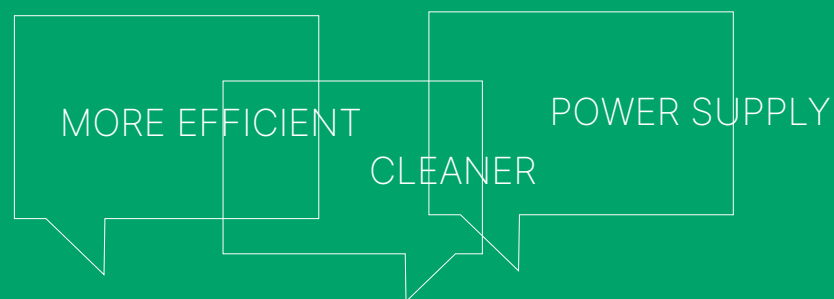
The activity established a comprehensive **curriculum that is readily replicable** by KPX and other firms with the necessary simulator equipment. The team intends to ask KPX to continue their training courses as the pandemic recedes and air travel between West Africa and Korea resumes, even without direct WBG support or intervention.

Finding Solutions - Sharing New Approaches

This program resulted in a shifting in mindset of energy production. Principles of green growth were taught in planning and operating networks in a manner that was inclusive, resilient and low-carbon. As an example, grid operators were originally not thinking in terms of the economic benefits accruing to businesses from having constant 24/7 supply and were not working towards resolving bottlenecks that prevented alternative supply paths from functioning while a primary path was down for repair.

Teaching system operators to consider how network components could be used to ensure businesses stayed powered up while maintenance was performed required changes in mindsets both around planning and operations, and the activity was successful in teaching these principles.

The program and workshop introduced a number of WAPP electricity utilities to the innovations and strategies deployed in Korea to unlock more efficient and cleaner power supply. For example, electricity losses are mitigated by using higher voltages - doubling the voltage in transmission can reduce the losses by 75 percent. Most of the local utilities were unfamiliar with the extremely high voltage networks (765kV and above) used in Korea and were planning to deploy up to 300kV networks. Familiarity with these ultra-high voltage networks allowed the utilities to reconsider what they would aim to procure, reducing losses and increasing capacity of their backbone networks, thereby allowing for more green power to be absorbed and more people able to access the power





Aleix Serrat
Capdevila
Senior Water
Resources
Management
Specialist

Building Drought Resilience in The South of Angola Through the Use of Geospatial Information and Nature-Based Infrastructure

Challenge

Multi-year drought in South Angola is causing significant difficulties that affect **over 76% of the local population**. Some areas in the region recorded the driest season in 35 years. Among the most pressing problems are **malnutrition, family abandonment, deepened lack of resources, deforestation, and increased risk of local conflicts**. The economic impacts of those setbacks for all sectors are estimated at over US\$749 million, with the agriculture-livestock-fisheries sectors being affected the most.

This KGGTF grant helped develop a better understanding of the spatial patterns

of surface and groundwater supply and use. It facilitated the involvement of the communities in the monitoring, management and maintenance of the water sources. It also helped identify sites with potential for the implementation of enhanced shallow groundwater recharge in wadis or low-lying areas. The activities funded by this grant aim to build more resilient communities in the face of climate variability and drought, and an increase in nature-based infrastructure solutions at the community level. This grant also aims to support regional maintenance enhancement and capabilities repair by improving information flow, boosting competitiveness, and focusing on the private sector.



Program Goal

The aim of this activity is to provide the Government of Angola with an opportunity to improve coordination of interventions from different donors and maximize the efficiency of development aid. To establish the most effective interventions, the following activities were conducted:

- Survey and mapping of water points and their functionality: (i) development of well inventory database, (ii) spatial analysis of all the collected data, and (iii) development of an open Map Viewer on the Internet.
- Prioritizing and targeting Nature-Based Infrastructure interventions (community or sub-watershed level).
- Building resilience through community-based management of water points.
- Management of cattle pastures and fodder supply.
- Capacity building and knowledge exchange.

Impact on the Ground

- The grant program will improve drought resilience at the national level. It is difficult to “shift consumer behaviors” when there are no alternatives to water supply. The increased resilience will strengthen the national capacity of shifting from a reactive mode to drought emergencies to a proactive preparedness to avoid the impacts and high costs.
- This program is a perfect example of a non-regrets approach to resilience for climate variability, through the increase in buffers of many types: water storage, redundancy in options and processes, local and regional capacity enhancements, and the connectivity of actors and information flows.
- The partnership with the private sector in developing a regional system of repair and maintenance actors, and spare

parts, with community organizations (including financial institutions to pay for repairs), and the trainings and workshops for local drilling and construction companies, are geared towards the creation of a healthy system of actors with incentives to make the system work.

- Local context approach: A local firm “Instituto Superior Politécnico Tundavala” could start the field work in Huambo and Cunene provinces from July 2021 (Components 1 and 3), even under COVID-19 restrictions. The sub-components based on desk work have been completed or advanced considerably.

Partnerships & Collaboration

- Korean Water Resources Bureau, The Ministry of Environment.
- Angolan Partners such as Social Support Fund (undo de Apoio Social, FAS) and Civil Protection and Fireman, and Development Workshop (Angola).
- Instituto Superior Politécnico de Tundavala (Huila Province, Angola) and Universidad Agostinho Neto (Luanda, Angola).
- Agence Francaise de Developpement’s SREP Project (Small-holders Resilience Enhancement Program).

Influencing World Bank Lending Operations

This program is emphasizing the activities that support a World Bank project in preparation for the South of Angola - Climate Resilience and Water Security in Angola-ReClimA, P177004. The progress of this KGGTF Advisory Services and Analytics (ASA) has been essential to raise awareness and to build the case for the arrangement of the project. The project is now fully aligned with ReClimA preparation.



Sombath Southivong
Senior Infrastructure Specialist

Green Mobility for Luang Prabang and Siem Reap

Challenge

There is a global consensus that transitioning to greener mobility will be crucial to the overall success of the climate agenda. Many cities are facing increasing challenges of automobile congestion which undermine sustainable growth, damage living conditions, and increase the environmental footprint. With rapid urbanization, green mobility and walkable cities are becoming imperative for inclusive and sustainable growth.

Program Goal

This grant program covers two similar cities in Cambodia (Siem Reap) and Lao PDR (Luang Prabang), both UNESCO World Heritage site. Both cities have significant cultural, historical and economic values and both are facing similar development challenges such as increased motorization, unplanned land use and disordered transport systems expansion, due to an economy increasingly based on tourism. These problems not only put their sustainable and inclusive growth at risk but also created learning opportunities and generate synergies by applying innovative solutions.

This program established partnerships with institutions in Korea, facilitated knowledge sharing and best practices, and built innovative tools to support the municipal authorities to foster green mobility strategies that will be applied to preserve both cities' cultural, historical, and economic values.

Impact on the Ground

- Development of a comprehensive green mobility and walkable city strategy and investment plan for Siem Reap and Luang Prabang.
- Diagnostic mobility patterns and constraints on shifting towards greener mobility modes.
- Development of green mobility vision and strategy, including priority investments.
- Business case for enhancing non-motorized transport including a scheme of core cycling paths for the pilot corridor improvement.
- Workshop and Knowledge Exchange on Korean experiences and best practices.
- Enhancing institutional resilience and capacity building to support implementation of green mobility actions.
- Supporting civil engineering schools of National University of Laos and Institute of Technology of Cambodia to build a knowledge base for students on innovative, entrepreneurial, and new data tools application.
- The program helped strengthen or enable development of green growth strategies and policies at national, municipal, and sector levels.

Partnerships & Collaboration

- Korea Transport Institute (KOTI)
- Seoul Human Resource Development Center (SHRDC). SHRDC has been fundamental in providing the World Bank and CityNet with a platform for delivering workshops, trainings and knowledge exchange with Seoul and broader Korean institutions.

- Urban Design Laboratory
- Department of Civil and Environmental Engineering, Seoul National University

Looking Ahead

In addition to supporting the two cities in their key strategies and planning process, the program will further help other cities tailor their mobility strategies to apply for project funding.



“Green mobility is critical to the development of Luangprabang, which is a world heritage town,”

Dr. Viengnam Douangphacanh, Director General, Department of Housing and Urban Planning, Ministry of Public Works and Transport of Lao PDR.

“We see that proper planning of green mobility aspects is especially important for its sustainability, attractiveness to tourism, and making a livable town. We would like to thank KGGTF and the World Bank for their support on this analytical work.”



Katelijan Van Den Berg
Senior Environmental Specialist

Myanmar, Cambodia, Sustainable Solid Waste & Plastic Management

Challenge

Inadequate waste management is a growing problem which poses a threat to public health and economic growth in Cambodia, Myanmar and the Philippines. Solid waste generation has increased substantially over the years, dump sites are rapidly reaching their capacity limits. When urban solid waste is not collected, it is often openly burned, informally buried, or disposed of in streets, canals, rivers, and parks. Solid waste burning can be a significant and costly source of air pollution in urban areas. Waste burning contributes to respiratory infections for urban residents, resulting in significant health damage and lost workdays. Plastic leakage into the environment, waterways, and ocean forms a particularly crucial part of solid waste mismanagement. The Mekong River is one of the top 10 major rivers which are estimated to collectively carry up to 95 percent of plastic to the oceans. Without intervention, it not only endangers the health and livelihoods of growing populations but poses danger to the fisheries sector and coastal areas affecting the growing tourism sector. Greater awareness is required among the public, government, and policy makers of the economic and health consequences and the urgency for immediate investment in solid waste management.

Program Goal

The program aims to educate and draw attention to the effects of inadequate waste management and the impact of solid waste on the environment and health and to provide solid waste and plastic management solutions through the East Asia region. This grant responds to the urgency for reform and investment in this sector through identifying key polluting plastic items and

economic impacts to tourism industry and loss of health, identification of solid waste and plastic investments and development of plastic action plan and roadmap with development of solid waste investment plan.

Impact on the Ground

- KGGTF support provided key evidence on plastic pollution priorities and plastic policy options and prepared a plastic action plan and roadmap which are now integrated by the Ministry of Environment into the development of a plastic sub-decree in Cambodia.
- The program enabled new partnerships with Korean counterparts, other development partners, WBG teams, and clients towards green growth operationalization.
- The partnership with Korean landfill management company—Sudokwon Landfill Site Management Corporation—was new to Cambodia and came directly from the activity.

Partnerships & Collaboration

- Korea Environmental Industry and Technology Institute (KEITI)
- Korea Environment Cooperation (K-ECO)
- Sudokwon Landfill Site Management Corporation (SLC)
- Ministry of Environment of Cambodia (MOE)
- Ministry of Public Works and Transport of Cambodia
- Ministry of Natural Resources and Environment Conservation of Myanmar

The Cambodia Plastic Action Plan and Roadmap is still being synchronized in terms of publication timing with the Ministry of Environment to align with the preparation of the plastic sub-decree.

- Yangon City Development Committee and Mandalay City Development Committee
- The Department of Natural Resources and Environment of the Philippines
- The Department of Interior and Local Government of the Philippines

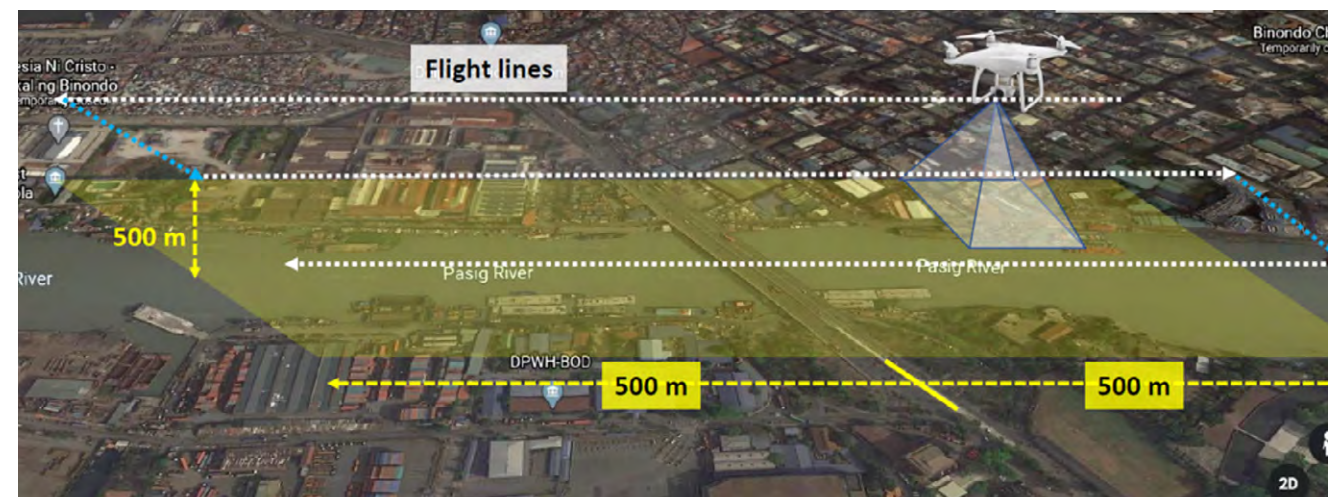
preparation. The program also resulted in the support of the Korean Landfill company to the Government of Cambodia.

Looking Ahead

Continuing existing initiatives: Support to RGC to develop policies to reduce plastic pollution, Technical Assistance for MOE on plastic policies, and Support for the National Plastic Sub-Decree. Support to MOE on possible stakeholder consultations for priority plastic policies and support for implementation. Application of identifying priority polluting plastic products to develop a roadmap for plastic action has been replicated from Cambodia to Myanmar, the Philippines, Vietnam and Indonesia and has a great potential to be replicated elsewhere.

Influencing World Bank Lending Operations

The program helped attract new funding (both internal and/or external) for WBG lending operations: The analysis and reports and knowledge sharing were key elements of the development of the concept of the World Bank Solid Waste and Plastics Improvement project, which is under





Sergiy Zorya
Lead Agriculture
Economist

Leveraging Technology to Modernize Agricultural Sector

Challenge

Until recently, soil health and fertility management across the agriculture sector were neglected due to the state-led model in Uzbekistan. For the past few decades, the focus was on production of cotton and wheat at any cost. Farmers cared less about soil health than achieving the state production targets. More than 45 percent of irrigated land is now saline, as monoculture production depletes the fertility of the soil. Overextraction of water for irrigation (e.g., 75 percent of water in Uzbekistan is used for production of cotton and wheat) also led to Aral Sea catastrophe.

In 2019, the Government of Uzbekistan adopted the Strategy for Agriculture Development in 2020-2030 (hereafter Strategy) aimed at replacing the state-led and unsustainable agricultural growth model by more market-oriented and greener approaches. The Strategy underlines the importance of investing in agricultural research and development, advisory services, education, environment protection, and climate change adaptation. It also emphasizes digital agriculture and brings up the importance of soil health and soil fertility management. Yet, many years of neglect and underinvestment in soil research and public capacity for land testing and management has resulted in a range of complex challenges that need to be addressed. **Public land management institutions had to be built from scratch.**

Program Goal

The Agriculture Modernization Project (AMP) seeks to enhance productivity-supporting agricultural services and promote market-led, high-value horticulture value chains. The objective of this KGGTF grant is to pilot smart-farming techniques for soil tests and fertility management and promote climate-smart agriculture for farmers under AMP. **The project supports investments in research, advisory services, enhancing soil fertility management, and digitalization.**

Impact on the Ground

Comprehensive assessment of Uzbek soil testing technologies and institutional setup for soil testing and soil fertility management was conducted. The assessment identified strengths and weaknesses of the existing system and identified key areas for modernization and reshaping of soil testing management in the country.

Knowledge sharing, including online seminars, began the process of in-country capacity building on setting up soil information systems, soil testing, development of fertilizer recommendation and how to extend information to farmers.

The **grant project was instrumental in attracting new funding** both internal and external new funding sources for World Bank lending operations. This **informed investments** for soil testing and soil information management under the World Bank-financed AMP, **at least US\$5 million.**

The World Bank assisted the Ministry of Agriculture to prepare the Strategy and in 2020 provided investment support through the Agriculture Modernization Project (AMP) financed by US\$500 million IBRD loan and IDA credit.

The **grant project informed the development of government strategies and policies by raising awareness about the importance of soil health and fertility management**, as well as research and advisory services for enhancing green growth. It has already **influenced the investment in soil testing activities under the AMP**. Soil testing and soil information management are now incorporated into the development strategy of Agricultural Knowledge and Innovation System (AKIS), which includes agricultural education, research, and advisory services. The program further informed analytical work on green growth that fed into the World Bank's Systematic Country Diagnostic and Country Partnership Framework.

The **KGGTF project has transformed the Ministry of Agriculture's approach** on soil testing, soil data management, and engagement with farmers. It showed examples of Korean farmer-oriented and science-based systems with digital solutions that will support the country in

its agricultural development. Sergiy Zorya, Lead Agriculture Economist, SCAAG, ECA Sustainable Development.

The US\$500,000 KGGTF grant project leverages investments in soil testing, soil information management, and digital agriculture under AMP (P158372). The AMP **financing is US\$500 million.**

Partnerships & Collaboration

The partnership with Korea's Rural Development Administration (RDA) started with virtual knowledge exchange in July 2021 and grew after the visit of RDA team to Uzbekistan in November 2021. During this visit, the RDA experts shared their knowledge of soil information systems, research and advisory services, soil testing, and how to effectively engage and train farmers. Continual knowledge sharing and learning from RDA will support the development and building of in-country capacity for soil testing and digital agriculture.

The project was translated into Russian the Knowledge Exchange Sector Guidance for Agriculture developed by KGGTF Secretariat, making it available not only to various stakeholders in Uzbekistan but other countries where Russian is widely spoken.



Rural Development Administration of Korea and the World Bank Agriculture and Food team was on a mission with soil experts to Uzbekistan from November 8 to 14, 2021 and shared their knowledge and experience with the Ministry of Agriculture of Uzbekistan on soil information, soil testing, and soil fertility management. In May 2020, the World Bank's Food and Agriculture Global Engagement Unit and the RDA signed an MOU to strengthen cooperation and promote green growth around the world.

The visit of Korean soil experts to Uzbekistan was a part of the technical assistance project financed by KGGTF to promote green growth and better soil management system in Uzbekistan and was facilitated by the MOU. KGGTF initiated the engagement of the World Bank with RDA through a virtual knowledge exchange on Korean experience in soil information system held in July 2020.

Looking Ahead

Investments in soil testing and soil information management informed by the KGGTF project will transform Uzbek agriculture. Public institutions are becoming better equipped to provide land and soil management related services and to support farmers learn how to optimize fertilizer use, reduce production costs, and reduce environmental degradation. Enhanced soil health will result in greater crop productivity.

Neighboring countries of Kyrgyz Republic and Tajikistan are keen to achieve agricultural modernization and would like to replicate the Uzbek programs. **The impact of knowledge and investments leveraged by KGGTF project will be extended beyond Uzbek borders.**



Axel Rifon Pérez
Senior Digital
Development
Specialist

**Alejandro Hoyos
Guerrero**
Senior Transport
Specialist

Smart-City Digital Approaches for Sustainable Urban Mobility in Latin American Cities

Challenge

Many cities in the developing world are embarking on transit reforms, of which Intelligent Transport Systems (ITS) are key elements. The impetus is driven by the need to address the negative externalities generated by the often low-regulated traditional bus system congestion, traffic-related accidents, GHG and local pollutant emissions. Many reforms are also driven by the notion of restructuring supply chain, applying stricter quality control and more efficient regulations, which will ultimately result in meeting passenger needs in terms of improved accessibility, affordability and safety. This activity will promote a resilient, greener, intelligent, and sustainable urban mobility model in LAC cities by developing a toolkit with three modules: (i) a manual to foster diagnosis of ITS systems; (ii) a manual to ease integral implementation of ITS systems, and (iii) an open-source platform to support city-wide reform by integrating privately generated data into public planning and operating processes. This activity will initiate with LAC cities such as Mexico City (CDMX), the largest and most populated metropolis in Latin America and the output would be replicable worldwide.

An international example of how to assimilate a conventional bus system into a city-wide integrated scheme, learned from comprehensive reform undertaken in Seoul, will serve as an important reference.

Program Goal

The objective of this grant is to promote resilient, greener, intelligent, and sustainable urban mobility models in LAC cities. Improved efficiency: the grant will help improve planning and operations. This allows for efficiency gains on two fronts. First, by making transit systems more attractive to users, it will incite changes in consumer behavior by increasing the number of users that prefer more efficient public transport over unsustainable private modes. In addition, better planning and operation, and proper integration will increase the efficiency in the operation of the transport system. In sum, an integrated, more efficient, and attractive public transport is affordable, safe, and effectively reduces congestion, local air pollution and its health impacts, and GHG emissions.

Promote increased resilience: a primary focus will be to make cities and transport systems more resilient against risks arising from past development mistakes and a changing climate. This includes the ability to quickly respond to changing needs, protection against extreme weather events, and even serve as part of a response mechanisms in case of a crisis.

Increasing competitiveness: There are substantial synergies between transport and urban environment, energy efficiency and growth objectives. When the transport and urban agencies integrate their planning and policy making operations, it can lead to increased efficiency, transparency, and competitiveness.



Partnerships & Collaboration

- Korea-World Bank Group Partnership Facility (KWPF)
- Korea Transport Institute (KOTI)
- Ministry of Land, Infrastructure and Transport of Korea (MOLIT)
- ITS Korea
- Valle de Aburra Metropolitan Area (AMVA) Transport Authority in Medellin, Colombia
- Seoul Transport Authority and Seoul Development Institute (SDI)
- ORT Mexico (Transport Authority)
- Transport for London (TfL)
- International Association of Public Transport (UITP)
- World Resource Institute (WRI)

Bilateral meetings have been organized and a successful Smart Mobility Knowledge Exchange has been held with interested cities in countries such as Ecuador, Bolivia, Peru and Mexico cities and Korean counterparts.

Looking Ahead

The development of Smart Mobility Solutions (SMS) readiness assessment methodology and its application will allow any city in the world to analyze its state of readiness, proposing and prioritizing Smart Mobility investments.

This activity will foster an innovative approach to mainstreaming digital technologies in the WBG. KGGTF is a key partner to provide client countries with technical assistance and knowledge sharing opportunities. Supporting access to tools helps client countries promote efficient and resilient planning and design of infrastructure projects. KGGTF's support also helps clients strengthen their decision-making capacity, planning, and implementation capacity of green growth projects.

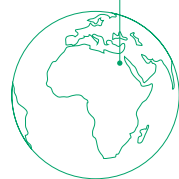


Smart Mobility Solutions

The grant team developed an interactive global database with relevant smart mobility initiatives for COVID management.

The grant team is now developing Smart Mobility Solutions (SMS) readiness assessment methodology and implementation guidelines. This diagnostic is crucial for the next stage and its application in selected cities. Analysis of international experiences and best practices of SMS to facilitate city-wide transport reform was completed, focusing on low-cost interventions and the use of vehicle-related data and information.





Arturo Ardila Gomez
Lead Transport
Economist

Egypt Green Transport Master Plan and Data Management System to Support Digital

Transformation of the Transport Sector and Intelligent Transport Systems

Challenge

Cairo is one of the five most congested and polluted cities in the world. Cairo accounts for 25% of Egypt's population and half of its GDP. A World Bank study estimated congestion costs in the Greater Cairo Metro Area at 3.6 percent of the country's GDP. While the Government of Egypt is investing in mass transit transport

projects, rapid urban, population growth, increasing motorization, and the need to strengthen sector governance and coordination of plans, visions and projects among authorities warrant the development of a comprehensive strategy to enhance the economic competitiveness of the metropolitan area and the country itself.

Program Goal

The aim of this grant is to develop a Data Management System to support the strategic planning of the public transport sector in the Greater Cairo area toward green and inclusive development, and transport sector digital transformation. **Creating an Urban Transport Master Plan for Greater Cairo** will support a more fair and open business environment and encourage competitiveness.

This project **collected transport data from a variety of innovative public and private sources** and assessed mobility trends, which **will feed into a digital management system** that supports transport planning

by authorities and **unlock private sector potential for digital mobility solutions.**

The development of a DMS (data management system) will provide an online dashboard useful for authorities, businesses, and transport users. The dashboard will provide visibility into a range of activities such as park and ride services or time schedules for various bus routes which will encourage citizens to leave their private cars and use public transport. Having this information accessible will allow transport planners and regulators to have the necessary information to make smart investment decisions and encourage changes in consumer behaviors.

Activities in Detail

- **Data Collection** through field data collection and focus group interviews.
- Development of a **strategic regional travel demand model** to assess geographic, demographic, and socioeconomic characteristics of mobility in the study area considering the existing transport network.
- Identification and prioritization of **public transport improvement opportunities, based on climate change mitigation potential, inclusiveness** i.e., improving accessibility of vulnerable women to economic opportunities, **and economic feasibility.**
- Advancing preparation of prioritized public transport improvement opportunities, including pre-conceptual **design to facilitate environmental and social safeguards, financial assessment to unlock private sector potential.**
- Development of **implementation roadmap for authorities.**
- **Capacity Building of Government Staff:** training on data collection, data analysis, travel demand model development, modeling intervention proposals, and impact assessment.
- Final Report: achievement of the engagement and next steps.



Innovative Solutions

Switching to greener technologies such as green vehicles and renewable energies, total consumption of energy and production of GHG emissions will decrease, improving the system's resilience to climate change impacts. Private transport companies are interested in developing EV charging stations powered by solar panels. These stations can be developed in a way to avoid any power outages and increase resilience against other extreme weather or natural disasters.

Impact on the Ground

The program **integrated green growth into the country's assistance strategy and lending** operations and provided critical data and analytics for the ongoing Egypt Country Climate and Development Report.

Additionally, the data and analytics informed policy dialogue on ambitious sustainable transport program of the Government of Egypt toward hosting the COP27, including Bus Rapid Transit (BRT) in Greater Cairo.

The program further identified opportunities including:

- Future expansion of the BRT network.
- Policy and regulatory measures and investment to promote integration with other public transport systems including metro, monorail, railways, and buses.
- Streetscape improvements that encourage nonmotorized transport for better access to BRT.

The Egypt Country Climate and Development Report (CCDR) leveraged data and analytics from this activity. Specifically, a **national transport sector carbon emission model** was developed from the activities supported by KGGTF. The CCDR assessed transport policy and regulatory interventions to reduce carbon footprint, including the following:

- Enforcing the laws to mandate retiring old vehicles.
- Implementation of GoE program and vision to transition to low/no emission fleet.
- Highway user charging.
- Street parking program.
- Improving streetscape to promote walking and cycling
- High-capacity public transport network, such as a BRT.

Partnerships & Collaboration

- Korea Transport Institute (KOTI)
- UK SPEIG (Co-financing—US\$585,000)
- Korean Energy Agency (KEA)
- Green Technology Center-Korea (GTC-K)

Looking Ahead

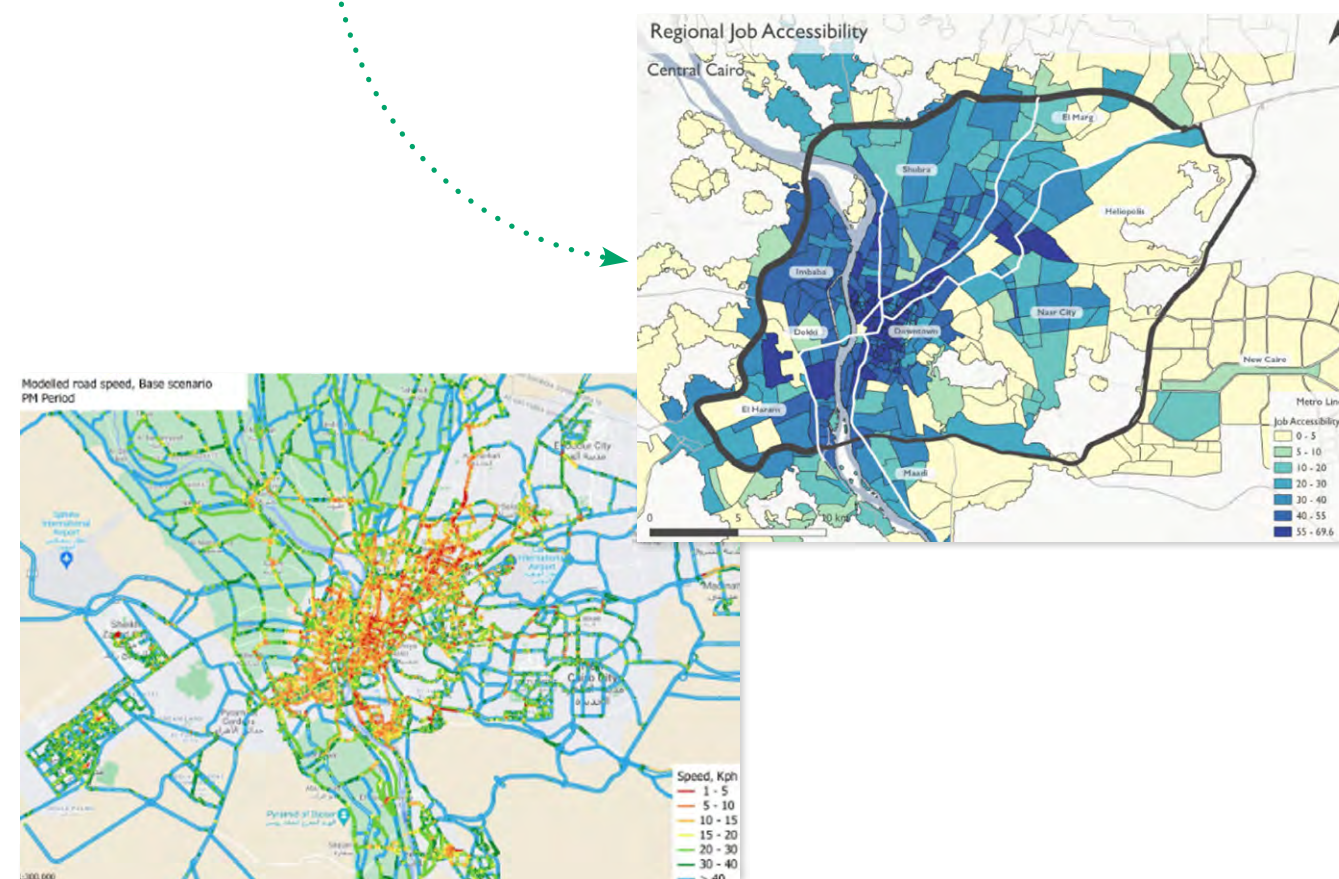
The program raised awareness of green growth concepts and operationalization among target groups and key stakeholders, laying down foundations for future green growth investments.

Capacity Building through Global Case Studies

The Ministry of Transport designated the Land Transport Regulatory Authority (LTRA) as the ministry to implement Bus Rapid Transit projects in Egypt. Capacity building for LTRA was essential and the KGGTF program supported the capacity building project using the BRT in Seoul, Korea as a case-study.

- Korea Transport Institute (KOTI)
- UK SPEIG (Co-financing—US\$585,000)
- Korea Transport Institute (KOTI)
- Korean Energy Agency (KEA)
- Green Technology Center-Korea (GTC-K)

The data system will support the planning and regulation of urban traffic and development plans. Currently, no agency is systematically collecting urban traffic data, despite the extensive congestion, especially in the Greater Cairo Region. The Bank team responsible for the execution of this activity partnered with the Korea Transport Institute (KOTI), the Korean Energy Agency (KEA), and the Green Technology Center-Korea (GTC-K). Through this partnership, the team accessed Korean expertise on Urban Transport Planning and leveraged digital technologies for the development and management of Smart Cities.





**Ahmed Shawky
M. Abdel Ghany**
Senior Water
Resources
Management
Specialist

Innovative Technology to Support Brahmaputra-Jamuna River Economic Corridor Development

Challenge

The Jamuna Economic Corridor Development Project is one of the World Bank priority projects to support the implementation of the Bangladesh Delta Plan 2100 (BDP2100). The BDP2100 foresees investments of up to US\$6 billion for Jamuna River in river training works, aids to navigation, and smart dredging. The project aims to operationalize sustainable development through pursuing inclusive green growth by reconciling Bangladesh's urgent need for rapid growth and poverty alleviation with the need to avoid irreversible and costly environmental damage.

The grant activities will support the Government of Bangladesh to achieve its goals through developing a manageable navigation channel using innovative, state of the art technology, thereby spurring economic activities along the river and strengthening regional integration through transboundary waterways transport.

Program Goal

The grant project specifically aims to enhance resilience of Jamuna River's riverbanks to flooding and erosion, improve navigability of the Jamuna River, and strengthen sector institutional capacity.

Initial priorities are capacity building to prepare the region to implement an innovative regional inland water transportation system. The program will initially develop training and capacity on how to 'build with nature' along with preparation for dredging, land reclamation and modeling and demoing on river training activities.

Impact on the Ground

Program resources helped to mobilize internal World Bank budget and additional financing from Disaster Risk Finance/GRiF donors. Additionally, the program helped integrate green growth concepts into two SAR pipeline lending operations: Jamuna River Economic Corridor Project and India Assam IWT Project.

Program funding was instrumental in developing the Bangladesh Country Partnership Framework.

Influencing World Bank Lending Operations

This program contributed to Phase 1 "Series of Projects" (SOP) of the Jamuna Program a nimble preparatory phase of US\$160 million over four years. Phase 1 is the first part of the 15-year approximately US\$3 billion lending projects to transform the river corridor.

Partnerships & Collaborations

- K-water

Looking Ahead

The KGGTF grant contributed to preparing Phase 1 of a "Series of Projects" SOP, a 15-year program totaling around US\$3 billion. Phase 1, US\$160 million, 4 years, is meant to be a nimble, preparatory phase for the next SOP phases.

"This program will help improve navigation channels, revive inland water transport, and boost regional connectivity and trade."

Mercy Tembon Country Director for Bangladesh and Bhutan





Megha Mukim
Senior Urban
Economist

Greening Urban Development in Bamako, Mali

Challenge

Bamako is the world's sixth fastest growing city, but it is not fulfilling its role as an engine of sustainable urban growth and service delivery. Urban sprawl has been associated with unequal access to basic services and limited mobility, exacerbated by the absence of adequate investments in infrastructure. In recent years, the metropolitan area was also hit by several large flooding events impacting a large majority of the city population. The lack of institutionalized support hinders development, significantly limits access to high-quality disaggregated data and hampers technical capabilities as well as administrative coordination, thereby limiting opportunities for well-informed, sustainable, and inclusive urban planning.

Program Goal

This program aims to tackle spatial and institutional fragmentation in the Greater Bamako area by **making more productive land use, improving urban services, and supporting institutional development and coordination.**

The team created an open digital platform for the Bamako Metropolitan Area through aerial image capture, drone mapping, citizen mapping and mapping of formal and informal transport systems. Support for the Bamako Urban Master Plan through technical assistance, including flood risk assessments for the District of Bamako to identify hazard zones, as well as assets and populations impacted, feasibility studies for potential grey and green interventions on the main river basin, and finally, with a review of measures to address resilience in urban planning. Building capabilities

for implementation through training in the collection and management of geographic information.

Impact on the Ground

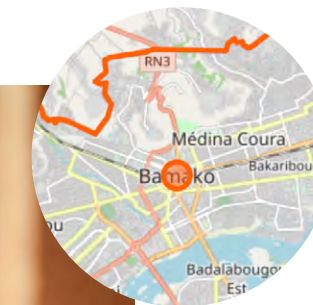
This program supports lending which will increase resilience to floods, strengthen urban management capacity and improve access to urban waste, sanitation, and water services. The program will strengthen government capacity in resilient urban planning through higher density and nature-based solutions and improve efficiency through better coordination across sector agencies.

1. Several datasets were collected for improved urban planning in the Greater Bamako area. An orthophotography of the key areas of the watershed was acquired through drone mapping.
2. Information on sanitation services in public schools and health centers, drainage, inundated areas, and the digitization of all buildings in the District of Bamako was conducted. The 120 trained swipers also contributed to mapping solid waste in Bamako by remotely carrying out 1,331,154 mapping tasks on MapSwipe. The resulting data together with several existing official datasets were consolidated and will be published on an open digital platform that was developed for the Bamako Metropolitan Area.
3. The detailed flood risk assessment based on a multi-criteria analysis considering drainage masterplan, flood vulnerability and poverty, helped identify priority neighborhoods.



"Mapping Bamako's infrastructure, schools and health centers will help make Bamako a more livable city, and that makes me happy."

Mapper from Bamako



Citizen mapping: Creating Jobs and Involving the Local Community

As waste continues to build in Bamako, it poses significant risks: clogging drainage systems and contributing to flooding, contaminating air and water resources, creating breeding grounds for vector-borne diseases such as malaria, and threatening the health of livestock. These problems significantly impact the city's living conditions. And yet - how can local authorities begin to solve a problem they cannot fully measure and characterize? The solution was to start generating data to help visualize the problem.

With high resolution aerial imagery of Bamako, approximately 100 community members were trained to collect data in the field using a cellular phone to register the location of different facilities (hospitals, schools, houses, etc.) as well as their attributes (the number of toilets and access to water and building materials, etc.). Together, they spent over 1,500 hours swiping through 6,000,000 imagery tiles and indicating where solid waste in the city was located. The data generated was a clear success. In two weeks, users swiped an area of over 450 square kilometers, producing some of the highest quality, detailed data ever produced.

"The mapping project helps us to find where waste is piled up in our community. I've learnt a lot through using this new participatory technology which allows us to work remotely. I'm very happy to have taken part in the project and hope this type of project can continue to map unsanitary areas all around the world," said Lassine Sanankoua, one of the Swipers who participated in the project.

Upon completion a certificate of participation was delivered to the mappers and subsequently some have found new jobs for government agencies thanks to the skills they acquired through this program.



“This program provided an opportunity to meet and actively involve local communities in the project, as well as to train and deploy young people in the field to participate in the digitization of the project’s intervention areas, including two neighborhoods that were recently heavily impacted by flooding.”

Nathalie Sidibe, Humanitarian OpenStreetMap Team, based in Mali

Partnerships & Collaboration

Working to collaborate with the following Korean partners:

- Korea Research Institute for Human Settlements (KRIHS)
- Land and Housing Corporation (LH)
- Land and Housing Institute
- Seoul Metropolitan Government (SMG)
- Seoul Institute
- Seoul City Development Corporation

Looking Ahead

Upon completion of this program, the creation of a Resilience Academy would ensure that the collected data will be continuously updated by students through internship programs which will be enabled by partnerships between local universities and national institutions. This will provide local and national government agencies with up-to-date spatial information to support their planning activities with the aim of fostering green growth in Bamako.



“Digital technology represents an opportunity for Bamako. This program contributes to creating the conditions to harness digital technology for the benefit of the city in the field of education and health, including through the creation of a geoportal that will allow open access to sound information that has been enhanced through the participation of the local population and decision-makers.”

Mahamoudou Wadidié, Director of the Regional Development Agency of the District of Bamako

Influencing World Bank Lending Operations

This grant highly influenced the US\$250 million **National Agriculture Value Chain Development Project** (P176758)

Ripple Effect

The team is working to incorporate learnings from Korean counterparts to improve digital services in Kenya. The Ministry of Agriculture is exceptionally keen to mainstream the green growth and climate-smart approach and use these as a critical solution to tackle the lack of extension services at the farmer level.

Based on the successful results achieved through this grant, the Ministry of Agriculture and the World Bank, have decided to include the leveraging of Digital Technologies for scaling up Climate Smart Agriculture as a key cross-cutting component for a new project, the \$250 million National Value Chain Development Project currently under preparation. This will ensure the Data & Digital initiatives supported through the grant will be further strengthened and institutionalized.



“This program was an opportunity for me to gain hands-on experience and to discover an application that allows to collect data on the location of garbage sites from a simple aerial image. It made me aware of the amount of solid waste in Bamako, which is greater than I imagined.”

Mapper from Bamako.





Oliver Knight
Senior Energy
Specialist

Anjum Ahmad
Senior Energy
Specialist

Renewable Energy Scale-Up to Support Green Growth in Pakistan

Challenge

Energy demand in Pakistan is increasing rapidly. To meet these demands, the country has focused on significant investment in the power sector, including construction of thermal power plants based on domestic coal (financed through bilateral agreements with China) and imported LNG. Pakistan has considerable potential for renewable energy resources and has announced a target for renewable energy sources to supply 60% of power output by 2030. In 2018, the Government requested support from the World Bank to increase solar power generation and access to electricity in Sindh province through the **Sindh Solar Energy Project**.

Project Goal

This grant supported scoping and early implementation of the lending project by funding technical studies for one of the initial sub-projects, and analysis on implementation modalities for the rooftop solar and off-grid components. The grant additionally responded to the requests for technical assistance from the federal government and supported three major studies on renewable energy development at the national level.

Impact on the Ground

Creating new models for delivery: The grant supported the detailed design and implementation of new models for public sector intervention under the Sindh Solar Energy Project, specifically: moving forward on competitive bidding for utility-scale solar; installation of solar on public buildings under an “invest to save” model; provision of results-based grants for the sale of solar home systems to households with low or no access to electricity through a market-based approach.

Removing barriers for VRE development:

The studies supported at the federal level helped to i) show the huge potential for low-hanging fruit for near-term solar and wind deployment (using surplus capacity at existing substations) and the need to consider long-term strategic projects; ii) map out a pathway to introduction of competitive bidding, including roles and design issues; and iii) come forward with recommendations on how to reform the incentives for rooftop solar to make them more financially sustainable.

Building capacity: The grant has helped to increase capacity within the Sindh Energy Department through detailed design and implementation support and has helped

improve knowledge of variable renewable energy (VRE) deployment within the National Transmission & Despatch Company and the Alternative Energy Development Board.

- Alternative Energy Development Board (AEDB)
- National Transmission & Dispatch Company (NTDC)
- K-Electric (to develop the grid connected rooftop PV component)

Influencing World Bank Lending Operations

Preparation and implementation of the Sindh Solar Energy Project. The grant also supported Analytical & Advisory Services activities under the Pakistan Sustainable Energy Program.

Partnerships & Collaboration

- The Export-Import Bank of Korea (KEXIM)
- Korea Hydro & Nuclear Power (KHNP)
- Korea South-East Power Company Limited (KOEN)
- Sindh Energy Department

Looking Ahead

The Sindh Solar Energy Project is now entering a critical stage of delivery on all three components, and discussions have started over how to build on this success once the project closes. Discussions are also ongoing with other provincial governments over replicating some of the activities under the Sindh project. At the federal level ongoing discussions with the government include topics such as how to develop solar and wind energy resources identified under this grant in Balochistan and how to support the implementation of competitive bidding at the federal level.



Project Director for Sindh Solar Energy Project by the rooftop solar installation on the Civil Hospital in Hyderabad

Objectives Achieved

The **objectives of the grant were to support the preparation of utility-scale solar, distributed solar, and off-grid solar were achieved.** Additionally, the grant provided technical assistance and capacity building to **support the Government of Pakistan work towards their goal of developing large-scale and distributable solar PV.**



Jason Russ
Senior Economist

Green Growth Diagnostics and Analytics for Building Back Better - RISE Framework

Challenge

In 2021, the World Bank developed Green, Resilient, and Inclusive Development (GRID) as a new development strategy. The GRID strategy recognizes that development is a balancing act between several different forms of capital: Physical capital- built infrastructure like roads, buildings, and technology; Human capital- the health, education, and well-being of our people; Natural capital- forests, soils, and clean air and water; and social capital- the trust and social cohesion.

Up until now, global development has been imbalanced across different forms of capital. While we have made enormous progress in terms of physical capital, human capital development has been relatively slow. While education and literacy rates have increased, and infant mortality has plummeted in recent decades, further progress is necessary. Our natural capital has seen a sharp decline over the past century. Deforestation rates are high around the world, over 7 million people die each year due to air and water pollution, and of course threats from extreme weather events are on the rise due to anthropogenic climate change.

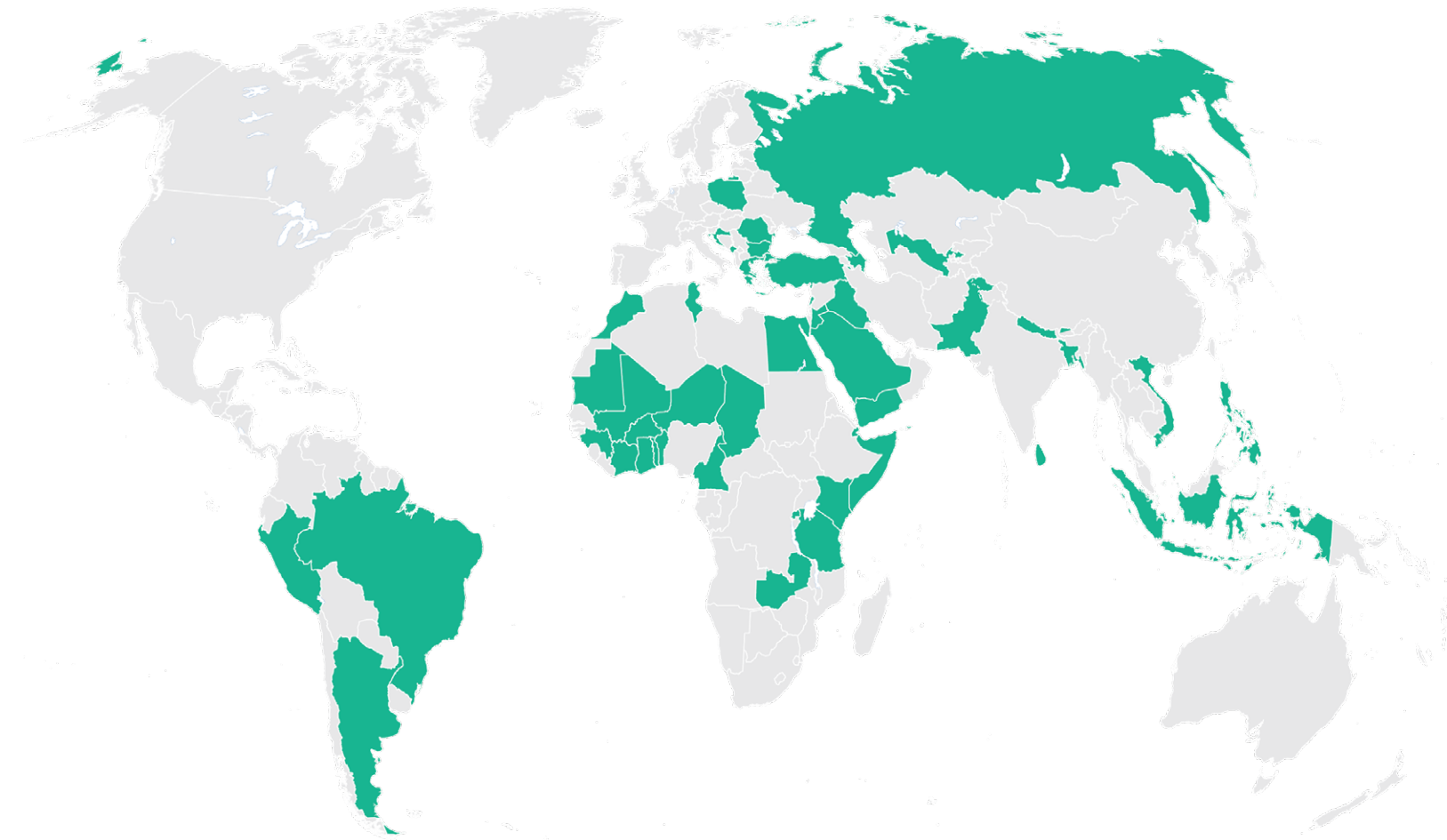
These challenges called for a rethinking of how we approach and measure development. Old forms of tracking progress such as Gross Domestic Product are simply not enough. We need new ways which extend beyond focusing on the quantity of economic growth and improve the quality of economic development.

Activities in Progress

- The team aimed to develop a methodology to support countries tracking progress along the dimensions of GRID (Greenness, Resilience, and Inclusiveness).
- Supporting countries to articulate the importance of these dimensions of development to clients, and develop solutions for improving both the quality and quantity of growth within a country.
- A comprehensive GRID diagnostic: A database of over 70 relevant indicators has been compiled from various global datasets. A data-driven methodology for determining which areas countries should focus on to ensure sustainable and high-quality growth was benchmarked. The diagnostic has been completed in over 45 countries, and is informing key World Bank strategies and identifying multi-sectoral development solutions.
- Deep dive: Off-the-shelf analyses and spatially explicit datasets have been developed to visualize hotspots and trends, and to identify the drivers and the economic, social, and environmental implications.
- Tailored solutions: A tailored set of solutions with experts across the World Bank was developed to identify policy and investment priorities to address the issues raised in the diagnostic and deep-dive sections.

Impact on the Ground

The diagnostic is shifting the needle for Sustainable Development analytics, contributions to country strategic documents, prioritizing focus areas, guiding the rationale and the strategy implementation, and policy lending operations.



COUNTRIES COMPLETED RISE FRAMEWORK

Argentina, Azerbaijan, Bangladesh, Benin, Bhutan, Brazil, Bulgaria, Burkina Faso, Cameroon, Chad, Cote D'Ivoire, Croatia, Djibouti, Egypt, Ghana, Greece, Guinea, Indonesia, Iraq, Jordan, Kenya, Lebanon, Mali, Mauritania, Montenegro, Morocco, Nepal, Niger, Pakistan, Peru, Philippines, Poland, Romania, Rwanda, Russia, Saudi Arabia, Serbia Senegal, Somalia, Sri Lanka, Tanzania, Togo, Tunisia, Turkey, Uzbekistan, Vietnam, Yemen, Zambia

The diagnostic is also being used to influence strategic country diagnostics, including Systematic Country Diagnostics (SCDs), Country Partnership Frameworks (CPFs), and Climate Change Development Reports (CCDRs). The diagnostic offers a data-driven, unbiased method for prioritizing sectors and interventions. As such, it can be a valuable tool for prioritization of focus areas, and identify multi-sectoral development solutions, and developing documents like SCDs and CPFs where task teams must narrow down a list of country and World Bank priorities from a long list of challenges.



In Nepal, a GRID Development Policy Operation (DPO) series is under preparation to provide lending which supports the country's commitment to GRID as its national development vision. Several policy tracks are informed by the Diagnostic. The country is preparing a ten-year GRID Strategic Action Plan based partly on the GRID Diagnostics.

In Bangladesh, the GRID Diagnostics provided early inputs to the Country Environmental Analysis update, which analyzes the country's environmental performance and how sustainability challenges are impacting the quality and quantity of growth. The diagnostics are now informing a proposed programmatic series of three DPOs to the Government of Bangladesh.

In Ghana, the diagnostic has been instrumental to enhance a policy dialogue on sustainability and greenness (the pillar which Ghana scores lowest across the region), which led to the on-going Climate Change Development Report. It also identified a set of multi-sectoral development solutions to inform the preparation of larger SD-led lending operations.

In Egypt, the diagnostic was used to shape the ongoing Country Partnership Framework, a document which defines the Bank's relationship with the country and sets development priorities for the next few years. The latest CPF will include a pillar focusing on strengthening climate resilience, based on the results of the diagnostic.

In Western Africa, the GRID diagnostics are being used to help guide the rationale and implementation strategy of International Development Assistance (IDA), which are grants and zero or low-interest loans aimed at boosting economic growth, lessening inequality, and improving living conditions.

In several countries in the Europe and Central Asia region, including Serbia, Azerbaijan, and Uzbekistan, the diagnostics are being used to identify investments which can stimulate the economy through job creation and economic growth while also minimizing environmental impacts.

Linkage to Lending: Country diagnostics have been completely demand-driven, occurring only when teams specifically request the diagnostic and are willing to collaborate on its development. Thus, the funding provided by the KGGTF is leveraged many times over by collaborations with country teams. The seed funding from the KGGTF grant funds the development of the country diagnostic. The country team then leverages their own co-financing to implement the recommendations.

Looking Ahead

The diagnostics will continue to be rolled out on a country-by-country basis, based entirely on demand from country teams.

The diagnostic has also inspired a suite of complementary diagnostics within the Bank. One example is the **Social Sustainability and Inclusion (SSI)** country core diagnostic, developed by the SSI GP. Following a similar methodology to the GRID diagnostic, the SSI **diagnostic focuses on issues such as social inclusion and cohesion, resilience, empowerment, voice, and accountability**. Similarly, a **benchmarking diagnostic has been developed** for Water Global Practice to assist in diagnosing water-related challenges within countries.

Read the full [RISE Framework Report](#) to learn more about the background and technical details of the GRID diagnostic.



Newly Launched Programs

2021 Program Investments

Korea's Ministry of Economy and Finance approved 15 new KGGTF grants in 2021 with a total of US\$10.15 million in funding to support the Post-COVID Green Recovery and align with Korea's Green New Deal. The grants chosen are designed to address post pandemic challenges and facilitate green growth and recovery across all key sectors.

Africa | Water | \$650,000

Shyam KC, Senior Water Resources Management Specialist

Supporting Lake Wide Inclusive Sanitation for Improving Water Quality in Lake Victoria Basin

The grant aims to contribute to the improvement of the overall environment, human and economic health of Lake Victoria and its surrounding communities and cities through a holistic, cost-effective, long-term sanitation approach. The grant is linked to the World Bank's Nile Cooperation for Climate Resilience (NCCR) Project.

East Asia Pacific | Agriculture | \$800,000

Sitaramachandra Machiraju, Senior Agriculture Economist

Smart Agri-food Systems Technical Assistance

The grant activities will contribute to the design and implementation of the Green and Competitive Agriculture Project by supporting the development of the concept of green and competitive agriculture and livestock cluster models. It will also inform the Livestock Commercialization Project by supporting the development of robust data-driven agriculture and digital governance solutions for green and competitive agri-food systems in Mongolia.

East Asia Pacific | Energy | \$600,000

Inchul Hwang, Senior Energy Specialist

Programmatic Technical Assistance (TA) on Energy Transition in the EAP region

The East Asia Pacific region is recognized as being at the center of global energy transition and climate change mitigation, representing a significant share of global GHG emission, coal production and consumption. The grant therefore aims to support the regional operations on energy transition, leveraging Korea's low carbon innovation and technology experience.

East Asia Pacific | Transport | \$400,000

Noroarisoa Rabefaniraka, Senior Transport Specialist

On-Demand Transit Service to Improve the Accessibility of Ulaanbaatar's Vulnerable Population

In response to rapid urbanization and an increasing urban transport demand, the grant aims to lay the analytical foundation of a solution to public transport services to improve the accessibility of low-income residents in the peripheral area of Ulaanbaatar to jobs, services, and other essential opportunities with improved provision of public transport services. The grant activities will support the Municipality of Ulaanbaatar in the preparation and implementation of the World Bank's Ulaanbaatar Sustainable Urban Transport Project.

East Asia Pacific | Urban | \$400,000

Kathrine M. Kelm, Senior Land Administration Specialist

Integration of Land Information and Geospatial Systems for Green Economic Recovery

As Vietnam embarks on the next decade of land policy reform, the World Bank has a unique opportunity to influence strategic policy decisions on how land assets are used and managed by assisting with improvement of data quality and integration of land and geospatial information data in a selected province in Vietnam. The grant will also provide policy and knowledge support for incorporating a green growth concept into the forthcoming land policy and land law revisions at the national level.

Europe and Central Asia | Energy | \$500,000

Silvia Martinez Romero, Senior Energy Specialist

Energy Storage and Ancillary Services Market Development Support

Ukraine needs large scale deployment of energy storage to enhance the flexibility of the power system for the synchronization. On this premise, the grant will support the creation of necessary enabling environments to enhance the flexibility of the Ukrainian power grid through energy storage technology investments and market expansion. It will also support synchronization with the European electricity grid and decarbonization of the sector, while aiming to contribute to the policy dialogue at the national level to promote sustainable, environmentally sound, and resilient development and decarbonization of the Ukrainian Power grid.

Europe and Central Asia | Transport | \$665,000

Antonio Benigno Nunez, Senior Transport Specialist, Program Leader

Innovative Green Smart Urban Mobility for Bishkek and Nur-Sultan

Traffic congestion, air pollution and associated negative consequences play a significant role in hindering socio-economic development in Bishkek and Nur-Sultan. The grant aims to provide support to the identification and implementation of smart and sustainable digital solutions to address transport-related emissions and improve urban mobility in these two cities.

Europe and Central Asia | Transport | \$335,000

Amali Rajapaksa, Senior Transport Specialist

Innovative Green Smart Urban Mobility for Tbilisi

As part of the efforts to support the development of integrated and sustainable transport systems in the Southern Caucasus region, the grant aims to assist Tbilisi City Hall with the implementation of sustainable urban mobility initiatives that will support clean air and urban connectivity. This is aligned with Georgia's 2030 Climate Strategy and Action Plan and its plan to reduce GHG emission from the transport sector.

Europe and Central Asia | Water | \$285,000

Khairy Al-Jamal, Senior Water Supply and Sanitation Specialist

Capacity Building and Water Academy

The grant aims to improve coverage, quality, and efficiency of water supply and sanitation services by strengthening capacity of the water supply and sewerage sector. The grant is fully aligned with the regional and country priorities in building the water utilities capacities, enhancing the sustainability of the sector, increasing the operational and financial efficiency, and strengthening climate resilience management.

Global | Digital | \$610,000

Sara Ballan, Senior Digital Development Specialist

Greening Digital: Implementing Green Digital Infrastructure Development

The grant aims to support low- and middle-income countries implement climate change strategies in the digital sector by developing practical tools and guidance on green choices along the digital infrastructure value chain. This initiative seeks to leverage Korea's strong experience in integrating digital and green global climate change efforts, ultimately supporting client countries transition to a green digital economy.

Latin America and Caribbean | Agriculture | \$950,000

Tomas Ricardo Rosada Villamar, Senior Agriculture Economist

Agri-Tech Smart Farm Pilot for Greening Growth in Mexico's Post COVID-19 Recovery

The grant aims to increase farm level productivity and climate resilience post Covid-19 in Mexico by creating a smart farm system with pilot sites. Increased R&D capacity and knowledge of smart farm practices among service providers and farmers from this grant activities are expected to accelerate the demand for smart farm technologies and lead to scale-up through the World Bank-financed lending operation, AGROINCLUYE.

Latin America and Caribbean | Urban | \$800,000

Luis Miguel Triveno Chan Jan, Senior Urban Development Specialist

Supporting Green and Resilient Urban Development as part of the COVID-19 Recovery

The grant aims to support the Colombia's Ministry of Housing and Territory, and the National Planning Department to systematize the technical and financial assistance provided to local governments to create an enabling environment for the effective implementation of large-scale, multi-sectorial urban transformation projects.

Latin America and Caribbean | Environment | \$700,000

Kevin McCall, Senior Environmental Specialist

Green Jobs through Enhanced Resource Efficiency, Renewable Energy and Waste Management in Industrial Parks

The grant aims to support the greening of Haiti's industrial sector and generating green jobs by improving the country's competitiveness in the garment value chain through economic circularity and eco-industrial parks. The grant is linked to US\$105 million Private Sector Jobs and Economic Transformation project (PSJET), informing how to mobilize potential financing of green solutions and building consensus around the potential implementation of quick win regulatory reforms.

Latin America and Caribbean | Energy | \$600,000

Janina Andrea Franco Salazar, Senior Energy Specialist

Supporting Energy Transition through Energy Storage

The grant aims to support Ecuador increase the resiliency of the electricity matrix by facilitating the development of new electricity storage capacity. The activities will contribute to the country's green economic post-Covid 19 recovery and climate resilience efforts.

South Asia | Transport | \$1,000,000

James Robert Markland, Senior Transport Specialist

Decarbonizing Freight for a New Era of Resilient and Efficient Logistics

The grant aims to support the transformation and decarbonization of the freight sector in India, focusing on a deep dive engagement of the trucking industry to power a multimodal, efficient, and connected logistics. Increased efficiency of the logistics sector will greatly assist India's ambitious post-Covid 19 development targets while bringing about a radical decarbonization of the sector. The grant is linked to the World Bank's Green National Highways Corridor project.

South Asia | Environment | \$500,000 and \$350,000

Eun Joo Allison Yi, Senior Environmental Specialist | Stephen Danyo, Sector Leader

Strategic Green Growth Transitions Toward a Post-COVID Recovery

The grant aims to conduct a building back greener diagnostic and to help identify policy reforms and investment options for selected priorities towards green growth in Bangladesh and Nepal. Specifically, this grant will support two countries take a multi-sectoral approach to advance green growth involving: green finance and fiscal policy, the agriculture/water/forest nexus, clean energy and transport, resilient infrastructure and urban development, nature-based tourism, biodiversity, and waste and pollution.

Communication and Dissemination

Communication and dissemination are critical for grant success. Over the past year KGGTF has continued to strengthen its communications by capturing and disseminating results from its grant programs. The focus remains on green growth as a multi-sectoral approach that applies to every country and sector. We continue to integrate the use of digital tools and new approaches to communicate program results through new formats including short videos, infographics, Knowledge Notes, webinars, and Story Maps, as well as utilization of new social media platforms and channels for dissemination. We strive to provide contents for a variety of stakeholders, including policy and technical teams as well as external media and the public, on the value and impact of the green growth approach.



In the News

In 2021, more than 60 articles in both international and Korean media featured KGGTF and its awardee grant teams' activities supporting climate actions, sharing green growth knowledge, and strengthening partnerships. This media coverage cast light on KGGTF's efforts to support climate smart development and the circular economy, and to link the World Bank's Climate Change Action Plans and the Korean Green New Deal by facilitating collaborations between grant teams and Korean partners. The most prominently featured green growth programs included cooperation for hazardous weather forecasting systems, forest management and restoration, solar energy, and insect farming for human food and animal feed.

Circular Economy

The World Bank's Africa Region Team (Dorte Verner, Nanna Roos, Afton Halloran, Glenn Surabian, and Da Woon Chung) received an award from the Rural Development Administration of Korea (RDA) at the 3rd Korea Insect Day Symposium for their dedication to reducing global hunger through innovative insect farming and introducing the excellence of the Korean insect industry. The insect farming project is supported by KGGTF grant program as a novel protein for human food and animal feed and a circular green food economic model for food insecurity.



Climate-Smart Development—Solar Energy

The government of Pakistan implemented solar power projects on 29 hospitals including Jinnah Postgraduate Medical Centre in Sindh and 35 government buildings in 2021. The project is a part of the Coal Free Future plan led by the Ministry of Energy in Pakistan since 2019 and supported by KGGTF the World Bank Regional Office. More than 200 government and hospital buildings as well as 200,000 homes will switch to solar energy under the national solarization project.

Partnerships with Korean Organizations

KGGTF hosted breakout sessions with Korea Meteorological Agency (KMA) and Korea Forest Service (KFS) during the KGID 2021 events. KMA shared its expertise on early warning systems of extreme weather, weather observation and analysis systems, and capacity building programs for disaster resilience with the World Bank's East Asia Disaster Risk Management Team. KFS discussed technology driven forest management practices and e-learning programs to explore future projects for carbon neutrality in client countries.



29 Covid hospitals to switch to solar energy

Dissemination of Grant Outputs

Supporting World Bank grant teams to communicate and disseminate program results and research is an essential component of ensuring program success. In many regions, the green growth approach is still a new concept and therefore educating multiple stakeholders is critical. The KGGTF team has developed various ways to showcase program successes and stories to further clarify to other teams and regions how a green-growth approach is relevant to all regions and sectors.

In 2021, KGGTF continued to support the communications efforts of grant teams by sharing their learnings through online platforms and virtual webinars. We launched a Story Map Series to bring grant program success stories to life and share them widely both inside and outside the Bank.



Joint Webinar Series

Africa Drone Forum (ADF)

KGGTF and ADF hosted two joint webinars in 2021 to share the path toward sustainable drone operations in Africa with World Bank teams and broader audience. The first webinar session explored elements of enabling drone ecosystems and highlighted the need for stakeholder engagement. The second webinar showcased how drone technologies can support and complement the current transport and logistics sectors and examined recent programs including a presentation in East Africa where drones were deployed in the delivery of medical goods and food aid. The program also examined how drones could support land mapping and risk assessment of drone operations, agriculture, and transport and energy infrastructure inspection. The two webinars played a key role in communicating with the audience insights and lessons learned from the scaling-up of operations within Malawi and the Democratic Republic of Congo.

Story Maps

The KGGTF Story Map Series is a knowledge product series capturing KGGTF Grant Success Stories in an interactive digital format. Each Story Map provides an overview of the grant and visual materials to help readers understand KGGTF grant programs, events, and their impacts. The format includes an executive summary, background information, methodology, technologies deployed, and the green growth impact of each program. Story Maps are disseminated widely and can be found on the KGGTF website.

1. KGID Story Map

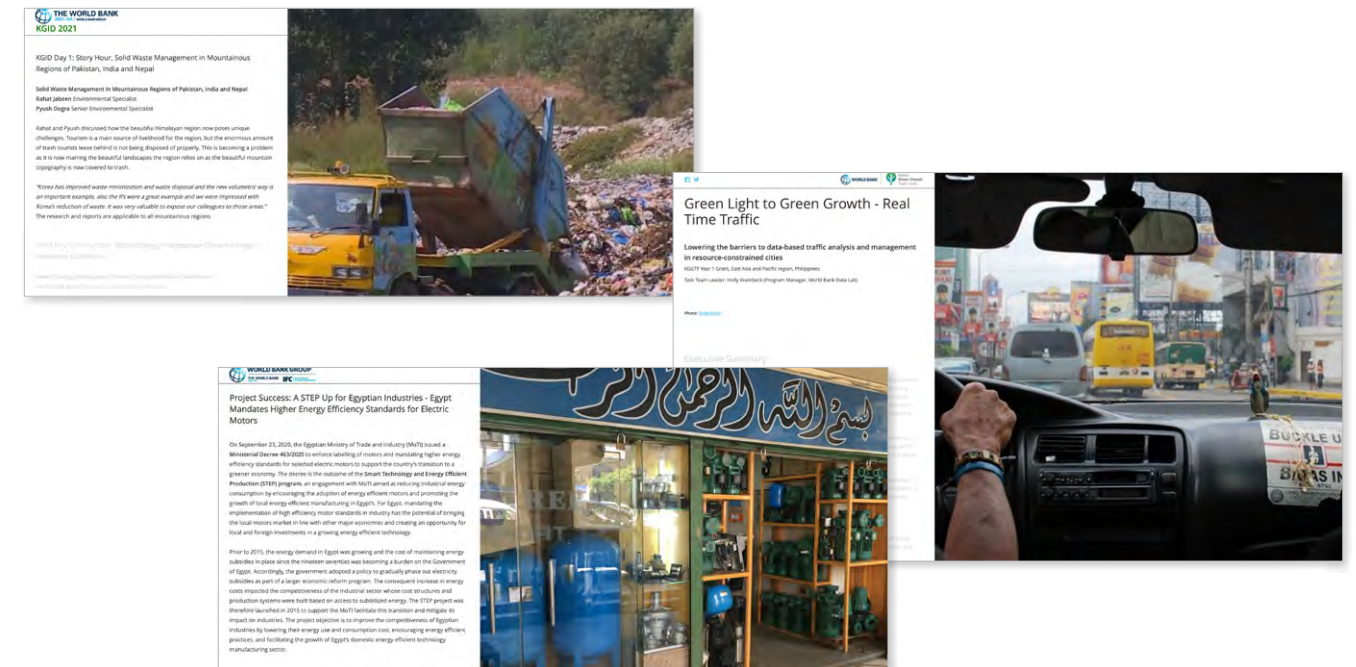
Korea Green Innovation Days (KGID) is the World Bank's flagship green growth knowledge sharing event. The KGID Story Map recaps the two-day event that focused on "Greening the Post-COVID Recovery", and shares innovations in Green Growth and Green, Resilient, Inclusive Development (GRID) post-COVID. The Story Map provides an overview of the in-depth discussion on major issues surrounding green growth and long-term climate-smart development.

2. Project Success: A STEP Up for Egyptian Industries—Egyptian Mandates Higher Energy Efficiency Standards for Electric Motors

This Story Map introduced Egypt's Smart Technology and Energy Efficient Production (STEP) program. The STEP project will improve the competitiveness of Egyptian industries by lowering their energy use and consumption cost, encouraging energy efficient practices, and facilitating the growth of Egypt's domestic energy efficient technology manufacturing sector.

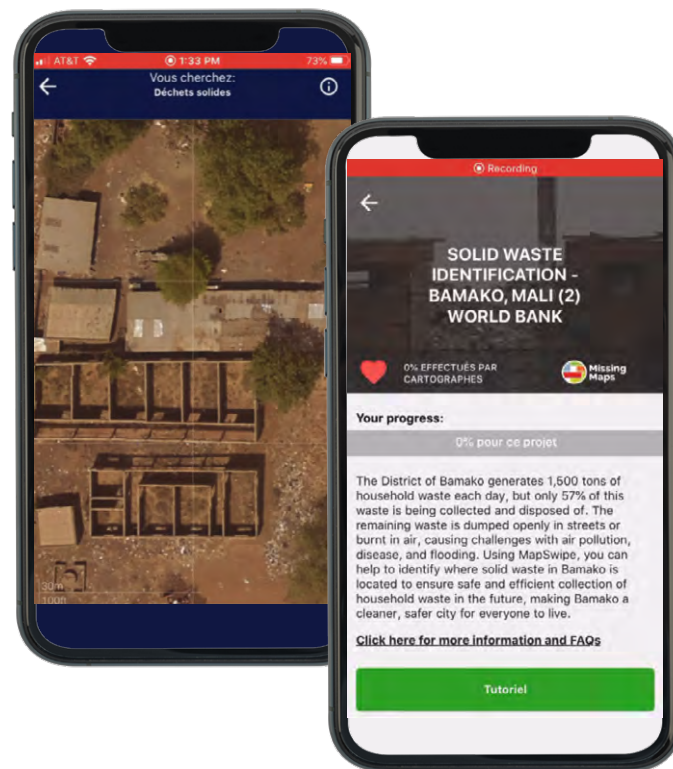
3. Green Light to Green Growth—Real Time Traffic

This Story Map introduced the real time traffic project in the Philippines. The project team collaborated with the Cebu City Government to develop a prototype open-source platform for collecting, visualizing, and analyzing traffic speed data derived from taxi drivers' smartphones, as well as to pilot new kinds of private sector collaboration on data sharing. A trailer video is attached to give a more enticing visualization of the grant project.



Communications and Public Outreach

Strategic communications and public outreach play a crucial role in increasing the visibility of KGGTF activities. In 2021, KGGTF engaged with partners and client countries in diverse virtual forms and hosted more than 1,100 policy and technical leaders to identify sustainable solutions and effective ways to implement those solutions. KGGTF's joint webinars and Knowledge Note provided an opportunity to explore new approaches to green growth such as doughnut economics and combining the Green New Deal with a Digital New Deal. YouTube videos and short videos provide engaging content on social media. The Trust Fund's monthly newsletters provide readers with regular updates on KGGTF activities, recent publications, upcoming events and other noteworthy activities.



KGGTF Program Outputs

Citizen Swiping Program in Mali

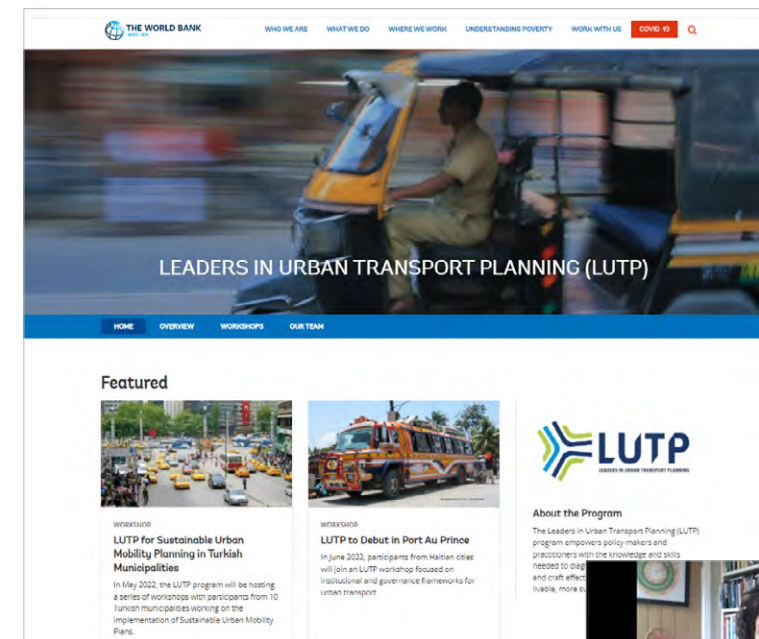
The World Bank partnered with MapSwipe, HeiGIT, the Humanitarian OpenStreetMap Team (HOT), and OpenStreetMap Mali on the Africa Cash for Digital Work Program. The pilot project created new remote job opportunities for individuals affected by COVID-19 and engaged them to solve community challenges such as solid waste while building relevant skills in GIS and technology. With high resolution aerial imagery of Bamako, community members used MapSwipe to indicate the collections of solid waste in the city.

Platform for Leaders in Urban Transport Planning (LUTP)

The Leaders in Urban Transport Planning (LUTP) program launched a new website to promote its interactive training workshops, approaches, and outcomes. The workshops were designed to empower policymakers and city transport leaders, so they could build the skills to identify, prepare, and implement holistic solutions to complex urban transport issues.

Joint Webinars

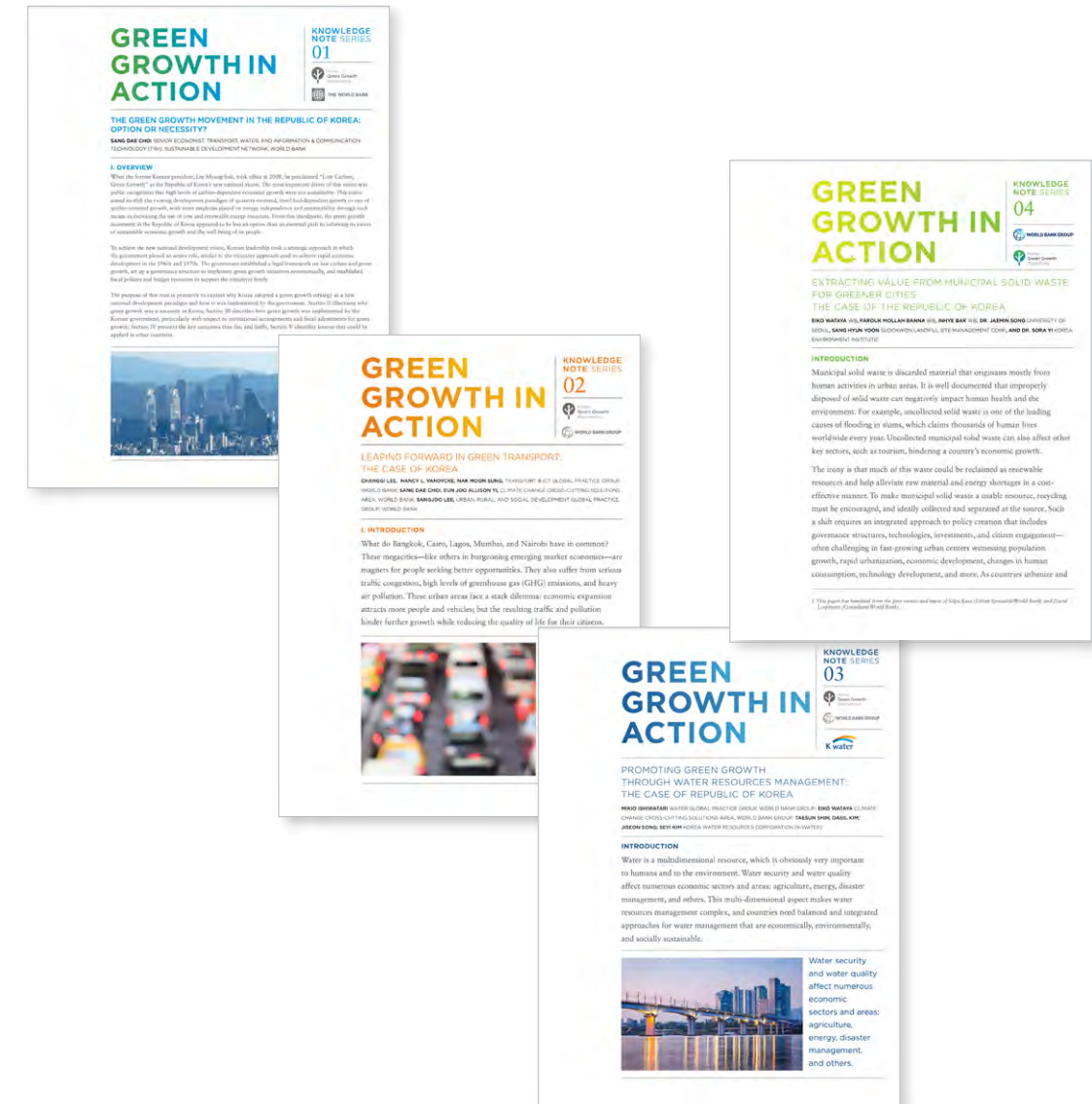
KGGTF and the Green Growth Knowledge Platform (GGKP) hosted two joint webinar series to promote green growth knowledge sharing and activities. Kate Raworth, author of Doughnut Economics: Seven Ways to Think Like a 21st Century Economist explored how doughnut economics could create a distributed and network approach to share opportunities and value with all and help societies #BuildBackBetter from COVID-19. The second joint webinar provided deep inside knowledge on how Pakistan, South Korea, and the US developed national Green New Deals, and how the European Union planned to become the world's first "climate neutral block" by 2050. The discussion focused on effective just transition mechanisms and the coordination of different government levels to support the implementation of a national Green New Deal.





Knowledge Note—Green Transformation in South Korea

Building on the previous Knowledge Note Series on Korea's Green Growth Actions, KGGTF published a Knowledge Note, Green Transition in South Korea, authored by Dr. Hyungna Oh, Professor of Kyung Hee University. The Knowledge Note provides a thorough analysis of Korea's green growth strategies from the 2010s to the Korean Green New Deal in the 2020s and introduces the backgrounds, law enforcement, and policy goals of Korea's green growth initiatives. Based on the infographics and data analysis of sectoral GHG emissions, Professor Oh shares critical views on previous green growth strategies and highlights key success determinants of the Korean New Deal. The key factors include i) local government's capacity for implementation and financial resources, ii) private sector mobilization, and iii) a strong carbon price for a low-carbon green transition.



Knowledge Note 01 features the reasons why Korea adopted a green growth strategy as a new national development paradigm and how it was implemented by the government.

Knowledge Note 02 shares Korea's experience on a paradigm shift on urban transport policy from supply-side approaches of road and metro expansion toward demand-side policies on transit-oriented cities.

Knowledge Note 03 explains Korea's 60-year integrated water resources management approach in response to rapid urbanization and national economic development as well as severe droughts and floods.

Knowledge Note 04 shares Korea's policies and actions on an integrated approach to make municipal solid waste a usable resource, encourage recycling, and engage with citizens.

KGTF YouTube

Increasing social media presence—KGGTF YOUTUBE—improves the visibility and awareness of KGGTF’s knowledge sharing and grant activities and reaches a broader audience. Trailer videos are produced to give captivating introductions of KGID events, KGGTF grant Story Maps and knowledge products.

1. KGGTF Annual Report 2020 Trailer

A Video summary of the KGGTF Annual Report 2020

2. KGID 2021 Highlights

Highlights of Korea Green Innovation Days 2021 and KGID Partnership Week 2021 teaser announcement

3. Essay—Korea Media Response to COP26

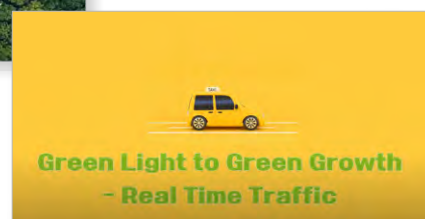
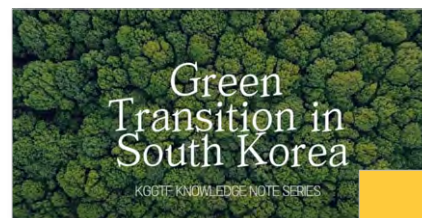
Korea Media Response to COP26 presented by Sohn Jie-Ae

4. KGGTF Knowledge Note—Green Transition in South Korea

A video summary of KGGTF Knowledge note on Green Transition in South Korea

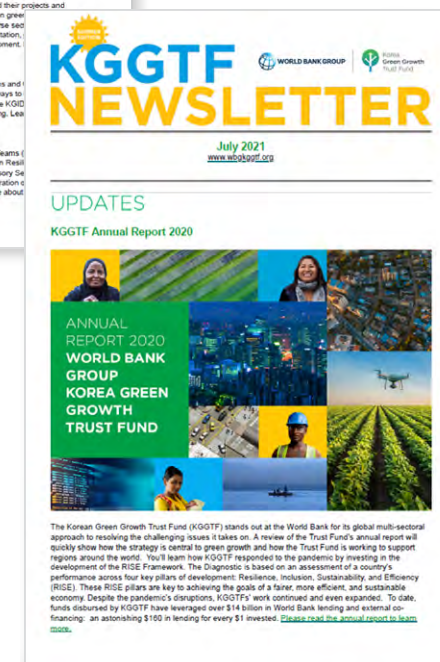
5. Trailer Video: Green Light to Green Growth—Real-Time Traffic Story Map

A video summary of KGGTF Story Map on Real-Time Traffic Project in the Philippines (Year 1 Grant)



Newsletters

KGGTF sends monthly newsletters to more than 1,400 recipients around the world. The newsletters provide feature stories, spotlight grant activities and demonstrate grant impacts grants around the world. The newsletter also includes news and updates from WBG Korea Office and promotes recent and upcoming events. The feature stories vary from month to month and showcase new announcements such as call for proposals, fund replenishment and portfolio updates, knowledge products, events, and engagement with partners in addressing global issues related to green growth. KGGTF looks forward to increasing newsletter subscribers and reaching out to a broader audience in 2022.



Financial Review

TF Financial Statement in 2021

INFLOWS

Beginning balance 01/01/21 \$ 22,948,666.39

RECEIPTS

Cash contributions	\$ 13,030,000
Transfers within hierarchy	\$ 1,150,119.58
Contributions via transfers	\$ (1,150,119.58)
Total Receipts	\$ 13,030,000

OUTFLOWS

Project disbursements	\$ 6,929,865.61
Non-project disbursement	\$ 1,639.28
Total Disbursements	\$ 6,931,504.89

FUND BALANCE

End of period balance 12/31/21	\$ 29,017,510.62
Undisbursed commitments as of 01/22/21	\$ 12,713,514.07
Investments income to other TFs	\$1,603,049.54

Annexes

ANNEX 1 APR Summary

KGGTF Active Grant Portfolio Annual Progress Report (APR)

The Annual Progress Report (APR) is critical for effective monitoring and evaluation of the Trust Fund and assessment of the performance of KGGTF grant programs. All KGGTF grant awardees with a grant active during the reporting period are responsible for the submission of an APR, which is a mandatory requirement from the Donor. For the 2021 APR, the KGGTF team collected individual APRs from 52 grants active within the calendar year 2021.

APR Objectives

The APR is intended to summarize the status of grant activities and track grant awardees' progress towards achieving the expected outputs and outcomes set out in the approved grant proposal. Informed through this feedback loop, KGGTF can better support all grant awardees to successfully achieve their expected outputs and outcomes on completion of their grant programs, as planned, and assess the performance of the Trust Fund, at both grant and fund level. The APR also serves to highlight any current or anticipated issues, delays or changes to the planned activities approved in the grant proposal and provides an opportunity for grant awardees to request KGGTF action or support during grant implementation. Analyzing data and experiences from KGGTF grants and program activities will contribute to improved design, implementation, quality, and impact of green growth investments across the World Bank and client countries.

Some Key Findings from the 2021 APR Cycle

1. Grants severely affected by COVID-19 may require additional support to adapt and succeed

Progress made by grants active during 2021 was again severely affected by year two of the COVID-19 pandemic. Many activities were unavoidably delayed, with planned knowledge exchange activities postponed pending the

lifting of COVID-related travel restrictions or in some cases dropped. The progress of grants approved in 2019 and 2020, those in early and mid-implementation, were particularly affected. However, now in the second year of the global pandemic many grant teams have demonstrated significant efforts to overcome these challenges, restructuring and rescoping workplans and adapting knowledge activities by developing virtual trainings, knowledge exchanges and workshop modalities, etc.

2. Closer monitoring of disbursed and committed funds in relation to delivery of outputs and outcomes is needed

Close monitoring by the KGGTF team of the delivery of outputs and outcomes is critical to ensure grant deliverables are in line with funds disbursed and committed and can be realized within the grant period. Significant differences between disbursement rate and delivery of outputs and outcomes should be flagged early through close monitoring. In some cases, it may be necessary for the KGGTF team to consider extending the grant period to ensure that grant outputs and outcomes are fully delivered.

3. Additional support may be needed for effective implementation of external partnerships


Analysis of the APR data found that grant teams require more support to implement knowledge partnerships effectively. External partnerships are planned with Korean and other organizations to support knowledge sharing and capacity building, but the average partnership implementation rate across the active grant portfolio was significantly lower than the average projected partnership implementation rate. In some cases, planned partnerships were not possible to implement. This was the case for both active and closed grants across the 2021 portfolio. Reasons included COVID-related restrictions on travel which caused delays and prevented in person participation in meetings that were critical to initiating and building partnerships.

ANNEX 2 KGGTF Portfolio


COUNTRY	SECTOR	APPROVAL YEAR	PROGRAM TITLE	STATUS	DONOR APPROVED AMOUNT
AFRICA					
African Cities	Urban, Rural & Land	2015	Improving Solid Waste Service Delivery in African Cities.	Closed	\$600,000
Burundi; Kenya; Rwanda; Tanzania; Uganda	Water	2021	Supporting Lake Wide Inclusive Sanitation for Improving Water Quality in Lake Victoria Basin	Active	\$650,000
Regional	Urban, Rural & Land	2017	Improving Solid Waste Management in African Cities	Closed	\$500,000
Sub-Saharan Africa	IFC	2014	Green Cities and Low Carbon Industries Initiative	Closed	\$600,000
Sub-Saharan Africa	Digital Development	2014	Negawatt Challenge for Energy Efficiency	Closed	\$500,000
Sub-Saharan Africa	Transport	2014	Africa Sustainable Transport Forum	Closed	\$1,000,000
Sub-Saharan Africa	Transport	2014	Streets as Drivers of Green Growth and Urban Prosperity in Africa	Closed	\$600,000
Sub-Saharan Africa	IFC	2015	Greener Cement Industries in Africa	Closed	\$700,000
EASTERN & SOUTHERN AFRICA					
Angola	Water	2019	Building Drought Resilience in the South of Angola through the use of geospatial information and nature-based infrastructure	Active	\$500,000
Ethiopia	Transport	2013	TA to promote integrated urban planning in Addis Ababa to foster green growth	Closed	\$1,100,000
Ethiopia	Urban, Rural & Land	2015	TA to promote solid waste management and urban greenery in selected Ethiopian secondary cities	Closed	\$400,000
Ethiopia	Transport	2016	Resilience of the Ethiopian Roads Network	Active	\$700,000
Ethiopia	IFC	2017	Ethiopia Green Industrialization support program	Active	\$550,000
Ethiopia	Energy & Extractives	2020	Grid Integration of Variable Renewable Energy in Ethiopia	Active	\$300,000
Kenya	Water	2017	Turning Kenya's Water Utilities Green	Closed	\$400,000
Kenya	Agriculture	2020	Leveraging Digital Technologies for Scaling up Climate Smart Agriculture in Kenya	Active	\$400,000
Kenya; Malawi; Zimbabwe	Agriculture	2020	Novel Protein: Insect Farming for Food and Feed for a Circular Green Growth Economy (IF4FF)	Active	\$800,000
Kenya; Rwanda; Tanzania; Uganda	Transport	2020	Preparing East Africa 4 future megacities for moving 50 million people by 2050	Active	\$450,000
Malawi	Transport	2020	Digital Skies in East Africa	Active	\$450,000
Rwanda	Urban, Rural & Land	2014	Secondary Cities program	Closed	\$650,000
Tanzania	Digital Development	2016	Smart Tanzania - Strengthening Data Services and Planning	Closed	\$600,000
Uganda	Transport	2016	Green Logistics Policy and Strategy for Uganda	Closed	\$500,000

COUNTRY	SECTOR	APPROVAL YEAR	PROGRAM TITLE	STATUS	DONOR APPROVED AMOUNT
Uganda	Water	2017	Strengthening capacity in climate resilience for water infrastructure development in Uganda	Active	\$600,000
Uganda	Agriculture	2020	Building a Green Agri-Food Ecosystem in Uganda	Active	\$535,000
Uganda +	Transport	2014	Developing skills to support transport and logistics	Closed	\$400,000
Uganda, Tanzania, SA	Urban, Rural & Land	2013	Enhancing Green Urban Development in Sub-Saharan Africa	Closed	\$1,000,000
WESTERN & CENTRAL AFRICA					
Ecogas member countries*	Energy & Extractives	2017	Strengthening Utility Capabilities by Capacity Building and South-South KE (SUCCESS-KE)	Closed	\$600,000
Benin	Urban, Rural & Land	2014	Leveraging Korea's Experience in the Solid Waste	Closed	\$225,000
Ecogas member countries*	Energy & Extractives	2016	Energy Storage application studies and knowledge exchange framework for Sustainable Green Growth in WAPP	Closed	\$765,000
Mali	Urban, Rural & Land	2015	Real Time Urban Flood Risk Management and Decision Support Tool for Bamako Greater Area	Closed	\$495,000
Mali	Urban, Rural & Land	2019	Greening Urban Development in Bamako (Mali)	Active	\$500,000
Senegal	Urban, Rural & Land	2020	Strengthening the Senegalese Spatial Data Infrastructure	Active	\$500,000
West Africa	Environment & Natural Resources	2015	West Africa Fishery Partnership for Competitiveness and Sustainability	Closed	\$670,000
EAST ASIA AND PACIFIC					
Cambodia; Lao PDR; Myanmar; Thailand; Vietnam	Environment & Natural Resources	2020	Supporting Identification of Riverine and Coastal Plastics Waste Management Solutions in Mekong countries: Technology, Innovation, Impacts	Active	\$400,000
China; Indonesia; Mongolia; Philippines; Vietnam	Energy & Extractives	2021	Programmatic Technical Assistance (TA) on Energy Transition in the East Asia and Pacific (EAP) region	Active	\$600,000
Indonesia	Urban, Rural & Land	2013	Sustainable Urban Growth Analytics and Planning Systems	Closed	\$375,000
Indonesia	Urban, Rural & Land	2013	Inclusive Green Growth for East Asia Pacific Cities	Closed	\$150,000
Indonesia	Urban, Rural & Land	2017	City Planning Labs and Spatial Planning	Closed	\$200,000
Indonesia	Transport	2020	Greening the Maritime Sector in Eastern Indonesia	Active	\$550,000
Indonesia	Water	2020	Support to Development of National Program for Citywide Inclusive Sanitation	Active	\$400,000
Indonesia, Philippines	Transport	2015	Improving Urban Mobility Using Big Data Analytics	Closed	\$500,000
Lao PDR	Environment & Natural Resources	2016	Green Growth Platform for Lao PDR	Closed	\$900,000
Lao PDR	Environment & Natural Resources	2019	Pollution Solutions for Lao PDR's Green Growth Policy and Investment Agenda	Active	\$700,000

* Benin, Burkina Faso, Cote d'Ivoire, Gambia, The Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone, Togo

COUNTRY	SECTOR	APPROVAL YEAR	PROGRAM TITLE	STATUS	DONOR APPROVED AMOUNT
Lao PDR, Cambodia	Transport	2019	Green Mobility for Luang Prabang and Seam Reap	Active	\$600,000
Mongolia	Digital Development	2014	SMART Gov - Civic Innov. Solving Old Problems in New Ways	Closed	\$430,000
Mongolia	Water	2020	Mongolia: Utilization of treated water from over melting ice in the "ger" district area for the heating system in eastern part of Ulaanbaatar city	Active	\$489,000
Mongolia	Agriculture	2021	Mongolia Smart Agrifood Systems Technical Assistance	Active	\$800,000
Mongolia	Transport	2021	On-Demand Transit Service to Improve the Accessibility of Ulaanbaatar's Vulnerable Population	Active	\$400,000
Mongolia	Digital Development	2020	Green Data Center Strategy in Mongolia	Active	\$350,000
Myanmar, Cambodia, Philippines	Environment & Natural Resources	2018	Myanmar, Cambodia, Sustainable Solid Waste & Plastic Management	Closed	\$700,000
Myanmar, Lao PDR, Cambodia	Agriculture	2020	Harnessing digital agriculture technologies for smallholder farmers	Active	\$750,000
Pacific Island Countries and Territories	Energy & Extractives	2019	Regional E-mobility and Battery Storage Programmatic Technical Assistance (TA) for Pacific Island Countries and Territories	Active	\$300,000
Philippines	Transport	2013	East Asia & Pacific Green Transport ICT	Closed	\$400,000
Philippines	Urban, Rural & Land	2014	Metro Manila Citywide Slum Upgrading Project	Closed	\$350,000
Vanuatu	Urban, Rural & Land	2015	Vanuatu Affordable and Resilient Housing	Closed	\$675,000
Vietnam	IFC	2014	Promoting Green Growth in Industrial Zones	Closed	\$750,000
Vietnam	Energy & Extractives	2015	Scaling-Up Rooftop Solar in Vietnam II	Closed	\$91,379
Vietnam	Environment & Natural Resources	2015	Scaling up Implementation of Vietnam's Green Growth Priorities	Closed	\$780,100
Vietnam	Energy & Extractives	2016	Scaling-Up Rooftop Solar in Vietnam	Closed	\$350,000
Vietnam	Transport	2017	Public Transport Development Strategy for Sustainable Urban Mobility in Hanoi	Closed	\$550,000
Vietnam	Energy & Extractives	2018	KGTF - Improving readiness for energy efficiency investment in Vietnam's industries	Active	\$350,000
Vietnam	Agriculture	2019	Enhancing agricultural green growth in Vietnam by applying disruptive technology to facilitate export of quality, safety and climate resilient agricultural products from Vietnam to Korea	Active	\$800,000
Vietnam	Urban, Rural & Land	2021	Integration of Land Information and Geospatial Systems for Green Economic Recovery (ILIGS-GER)	Active	\$400,000
Vietnam, Indonesia	Urban, Rural & Land	2015	Inclusive Green Growth for EAP Cities	Closed	\$150,000
					
Armenia, Azerbaijan, Belarus, Georgia, Moldova and Ukraine	Transport	2017	Greener Transport Connectivity for the Six Eastern Partnership Countries	Closed	\$960,000
Azerbaijan	Environment & Natural Resources	2017	Towards green growth of Baku: enhancing people's quality of life through sustainable cleanup of polluted lakes	Closed	\$600,000

COUNTRY	SECTOR	APPROVAL YEAR	PROGRAM TITLE	STATUS	DONOR APPROVED AMOUNT
Georgia	Transport	2013	Georgia Green Freight Transport and Logistics	Closed	\$250,000
Georgia; Kazakhstan; Kyrgyz Republic	Transport	2021	INNOVATIVE GREEN SMART URBAN MOBILITY FOR BISHKEK, NUR-SULTAN AND TBILISI	Active	\$1,000,000
Kazakhstan	Environment & Natural Resources	2015	Developing Integrated and Green Solutions for Municipal Solid Waste Management in Kazakhstan	Closed	\$200,000
Kazakhstan	Transport	2016	Kazakhstan Green Growth In Road Sector Through E-tolling	Closed	\$700,000
Kazakhstan	Agriculture	2019	Support to the preparation of the Sustainable Livestock Development Project in Kazakhstan	Closed	\$500,000
Kazakhstan; Uzbekistan	Transport	2020	A Tale of Two Smart and Green Cities: Innovative Solutions for Urban Mobility in Almaty and Tashkent	Active	\$600,000
Kosovo	Digital Development	2014	Innovative and Green Growth for Rural Areas: Investing & Scoping	Closed	\$485,000
Kyrgyz Republic	Environment & Natural Resources	2020	Reducing Health Risks through Improvement of Air Quality in Bishkek City of the Kyrgyz Republic	Active	\$350,000
Kyrgyzstan	Urban, Rural & Land	2015	Moving Towards Green Urban Development of Kyrgyz Cities	Closed	\$300,000
Moldova	Energy & Extractives	2015	Energy Efficiency Transformation in DH	Closed	\$530,000
Poland	Transport	2013	Piloting Sustainable and Green Urban Transport Solutions for Sub National Governments	Closed	\$625,000
Regional	Water	2015	Central Asia Water Resources Management (CA-WARM) Phase-I Project	Closed	\$370,000
Turkey	Urban, Rural & Land	2014	Developing Green Growth Strategies for Metropolitan Municipalities	Closed	\$500,000
Turkey	IFC	2017	Greener Manufacturing in Turkey	Closed	\$450,000
Turkey	Energy & Extractives	2018	Scaling Up Rooftop Solar PV	Closed	\$300,000
Ukraine	Transport	2013	Sustainable Urban Transport for the City of Kyiv	Closed	\$350,000
Ukraine	Transport	2016	Towards Greener and More Efficient Logistics in the Ukraine: An Integrative Approach	Closed	\$700,000
Ukraine	Energy & Extractives	2021	Ukraine energy storage and ancillary services market development support	Active	\$500,000
Uzbekistan	Energy & Extractives	2015	Support the Development of A National Industrial Energy Management Program in Uzbekistan	Closed	\$400,000
Uzbekistan	Urban, Rural & Land	2017	Leveraging green growth for balanced spatial development in Uzbekistan	Closed	\$300,000
Uzbekistan	Agriculture	2019	Leveraging technology for Uzbekistan's agricultural modernization	Active	\$500,000
Uzbekistan	Water	2021	Capacity Building and Water Academy-Uzbekistan	Active	\$285,000
Uzbekistan	Environment & Natural Resources	2020	Promoting Forest Information and Communication Technology in Uzbekistan	Active	\$350,000
Uzbekistan and Kazakhstan	Environment & Natural Resources	2019	Action on Circular Economy for Green Growth in Uzbekistan and Kazakhstan	Active	\$500,000

COUNTRY	SECTOR	APPROVAL YEAR	PROGRAM TITLE	STATUS	DONOR APPROVED AMOUNT
 LATIN AMERICA AND THE CARIBBEAN					
Argentina	Urban, Rural & Land	2014	Implementing Green Solution for Waste Management	Closed	\$400,000
Argentina	Urban, Rural & Land	2017	Greening Urban Growth in Metropolitan Buenos Aires	Closed	\$300,000
Argentina, Province of Santa Fe	IFC	2018	Non-Revenue Water (NRW) project for Santa Fe Province – Argentina	Closed	\$400,000
Bolivia, Mexico	Environment & Natural Resources	2016	Promoting equitable access to sustainable development in Bolivia and Mexico	Closed	\$700,000
Brazil	Urban, Rural & Land	2013	Rio de Janeiro Low Carbon City Development Program	Closed	\$625,000
Brazil	Urban, Rural & Land	2013	A Sustainable Vision for the Rio de Janeiro Metropolitan Region	Closed	\$320,000
Central America*	Energy & Extractives	2016	Sustainable Green Growth in Central America	Closed	\$700,000
Colombia	Water	2015	Greening Cities through a Water-Centric Urban Planning Approach	Closed	\$200,000
Colombia	Environment & Natural Resources	2016	Support to the Colombia Green Growth Policy	Closed	\$500,000
Colombia	Water	2016	Water Initiatives to Support Green Growth and Sustainable Cities in Colombia	Closed	\$300,000
Colombia	Transport	2017	Improving Public Transit & Sustainable Territorial Dev in Bogota	Closed	\$650,000
Colombia	Transport	2018	Piloting Electromobility in the Integrated Transport System of the Aburra Valley (Medellin, Colombia)	Closed	\$870,000
Ecuador	Energy & Extractives	2021	Supporting Ecuador's Energy Transition through an Energy Storage Program	Active	\$600,000
Ecuador, Colombia	Digital Development	2019	Smart-city digital approaches for sustainable urban mobility in Latin-American cities	Active	\$600,000
Guatemala	Digital Development	2014	Using ICT to Increase Green Competitiveness in Guatemala	Closed	\$605,000
Haiti	Energy & Extractives	2015	Haiti Green Growth Through Renewable Energy Integration	Closed	\$250,000
Haiti	Environment & Natural Resources	2021	Green jobs in Haiti through enhanced resource efficiency, renewable energy and waste management in industrial parks	Active	\$700,000
Honduras	Energy & Extractives	2015	Tackling Power Sector Barriers for Green Growth in Honduras	Closed	\$450,000
Mexico	Urban, Rural & Land	2013	Mexico Instruments for Urban Redevelopment	Closed	\$150,000
Mexico	Urban, Rural & Land	2013	Green Growth Strategies for Mexican Cities	Closed	\$250,000
Mexico	Urban, Rural & Land	2015	Strengthening Mexico's Capacity for Integrated Solid Waste Management	Closed	\$400,000
Mexico	Urban, Rural & Land	2015	Strengthening urban management in Mexican cities	Closed	\$400,000
Mexico	Agriculture	2021	An agri-tech smart farm pilot for greening growth in Mexico's post COVID-19 recovery	Active	\$950,000

* Guatemala, Honduras, Nicaragua, El Salvador, Costa Rica and Panama

COUNTRY	SECTOR	APPROVAL YEAR	PROGRAM TITLE	STATUS	DONOR APPROVED AMOUNT
Mexico	Urban, Rural & Land	2021	Supporting green and resilient urban development as part of the COVID-19 recovery in Mexico	Active	\$800,000
Panama	Urban, Rural & Land	2013	Supporting Green Growth Urban Dev. Strategy in Ecuador	Closed	\$300,000
Paraguay	Urban, Rural & Land	2020	Building Coastal Resilience in Asuncion through Climate Smart Solutions	Active	\$500,000
Peru	Environment & Natural Resources	2015	Investments in Environmental Management and Green Growth	Closed	\$430,000
Peru	Energy & Extractives	2016	Greening Peru's Energy System: promoting clean energy for a resilient power system	Closed	\$600,000
Regional	Urban, Rural & Land	2013	Regional Resource Recovery and Recycling	Closed	\$150,000
 MIDDLE EAST AND NORTH AFRICA					
Egypt	IFC	2015	Smart Technology and Energy Efficient Production (STEP Phases 1 & 2)	Closed	\$700,000
Egypt	Environment & Natural Resources	2015	Air and Water Pollution Management Program	Closed	\$450,000
Egypt	Urban, Rural & Land	2015	Cairo Smart Service Delivery Project	Closed	\$575,000
Egypt	IFC	2015	MENA Cleaner production for Companies	Closed	\$304,000
Egypt	Transport	2019	Egypt Green Transport Master Plan and Data Management System to Support Digital Transformation of the Transport Sector and Intelligent Transport Systems	Active	\$600,000
Jordan	Urban, Rural & Land	2016	Greening growth for the displaced in Jordan	Closed	\$600,000
Lebanon	Transport	2013	Implementing congestion reduction measures in Beirut	Closed	\$200,000
Morocco	Transport	2013	Climate Change Adaptation in the Road Sector	Closed	\$200,000
Morocco	Water	2013	Quantifying Tradeoffs of the Water- Energy Nexus	Closed	\$300,000
Morocco	Environment & Natural Resources	2020	Boosting the Blue Economy Potential in Morocco	Active	\$400,000
Tunisia	Environment & Natural Resources	2018	Blue Economy	Closed	\$300,000

 SOUTH ASIA					
Bangladesh	Energy & Extractives	2015	An efficient, resilient, and green grid for the Bangladesh power system	Closed	\$500,000
Bangladesh	Water	2020	Innovative technology to support Brahmaputra-Jamuna River Economic Corridor Development	Active	\$400,000
Bangladesh; Nepal	Environment & Natural Resources	2021	Strategic Green Growth Transitions in Bangladesh and Nepal: Toward a post-COVID recovery	Active	\$850,000
Bhutan	Transport	2014	Green Transport Initiative	Closed	\$300,000
Bhutan, Nepal, Pakistan	Environment & Natural Resources	2016	Integrated Catchment Management for Sustainable Hydropower in Bhutan, Nepal and Pakistan	Closed	\$750,000

COUNTRY	SECTOR	APPROVAL YEAR	PROGRAM TITLE	STATUS	DONOR APPROVED AMOUNT
India	Urban, Rural & Land	2013	Options Study for Development Along the Eastern Dedicated Freight Corridor	Closed	\$400,000
India	Digital Development	2014	ICT Applications to Achieve Green Growth in an Indian City	Closed	\$700,000
India	Energy & Extractives	2014	Towards Green Growth in DVC through use of ICT and Investment in Clean Energy Generation	Closed	\$600,000
India	Transport	2014	Promoting the use of Green Construction Technology in Road Sector	Closed	\$500,000
India	IFC	2014	E-Waste Advisory Project KGGTF funds	Closed	\$840,000
India	Digital Development	2014	ICT Applications to achieve Green Growth in Indian Cities (Phase II)	Closed	\$700,000
India	Urban, Rural & Land	2014	Design and Preparation of Tamil Nadu Sustainable Urban Development	Closed	\$600,000
India	Urban, Rural & Land	2014	Regional Economic and Infrastructure Investment Strategy	Closed	\$400,000
India	Transport	2015	Kolkata Metropolitan Transport Efficiency Improvement	Closed	\$400,000
India	Transport	2015	Intelligent Transport Systems and PPP in City Bus Systems for Indian Cities	Closed	\$350,000
India	Urban, Rural & Land	2015	Green Regional Development Plan for Growth Centers in India	Closed	\$350,000
India	Urban, Rural & Land	2020	Metropolitan Kolkata Urban Transport and Spatial Planning	Active	\$400,000
India	Transport	2021	Decarbonizing freight for a new era of resilient and efficient logistics in India	Active	\$1,000,000
India, Bangladesh	Transport	2015	Smartcard Integration for Better Connected Public Transport System	Closed	\$400,000
India, Nepal, Pakistan	Environment & Natural Resources	2017	Solid Waste in Mountainous Regions of India, Pakistan and Nepal	Closed	\$500,000
Nepal	Urban, Rural & Land	2017	Supporting Green Growth Urban Development and Planning Processes in Nepal	Closed	\$400,000
Pakistan	Urban, Rural & Land	2013	Initial Assessment of Karachi Economy and Role as a Growth Center	Closed	\$400,000
Pakistan	Urban, Rural & Land	2016	Green Karachi through improved service delivery system	Closed	\$500,000
Pakistan	Energy & Extractives	2017	Renewable Energy Scale-Up to Support Green Growth in Pakistan	Active	\$747,021
Pakistan	Environment & Natural Resources	2018	Catalyzing Green Investments in Pakistan	Active	\$400,000
Pakistan, India and Bangladesh	Environment & Natural Resources	2016	Resource Efficient Cleaner Production in South Asia	Closed	\$600,000
Sri Lanka	Urban, Rural & Land	2014	Sri Lanka Strategic Cities	Closed	\$500,000
Sri Lanka	Energy & Extractives	2016	Sri Lanka Renewable Energy Integration	Closed	\$400,000
Sri Lanka	Energy & Extractives	2017	KGGTF Sri Lanka Energy	Closed	\$400,000
Sri Lanka, Bangladesh, and India	Urban, Rural & Land	2015	Transforming Cities through Public Space	Closed	\$600,000

COUNTRY	SECTOR	APPROVAL YEAR	PROGRAM TITLE	STATUS	DONOR APPROVED AMOUNT
GLOBAL					
Global	Urban, Rural & Land	2019	Geospatial Information Management for Green Growth Operationalization (GIMGGO)	Active	\$700,000
Global	Global Initiatives	2013	Decision Making Under Uncertainty	Closed	\$1,150,000
Global	Urban, Rural & Land	2013	Capacity Building for Green Urban Growth	Closed	\$500,000
Global	Urban, Rural & Land	2013	City Creditworthiness Program	Closed	\$500,000
Global	Transport	2013	Capacity Building for Leaders in Energy Efficient Urban Transport Planning	Closed	\$500,000
Global	Transport	2014	Training Hub "Transportation for Green Growth"	Closed	\$500,000
Global	Urban, Rural & Land	2014	Low Carbon City Development	Closed	\$1,370,000
Global	Digital Development	2015	Unlocking Data Innovations for Smarter Urban Transport	Closed	\$300,000
Global	Urban, Rural & Land	2015	An Integrated Approach to Urban Sustainability Planning	Closed	\$1,560,000
Global	Global Initiatives	2016	Investing in green growth under uncertainty	Closed	\$2,475,000
Global	Transport	2016	Mainstreaming GHG Mitigation in Rail Freight and Developing Strategies for Sustainable Transport Infrastructure	Closed	\$500,000
Global	Environment & Natural Resources	2017	Learning from Korea's Green Growth Experience to Tackle Environmental Health Challenges	Active	\$875,000
Global	Environment & Natural Resources	2017	Green Growth via Green Infrastructure Construction	Active	\$650,000
Global	Energy & Extractives	2018	Hydropower climate change resilience guidelines development	Closed	\$300,000
Global	Energy & Extractives	2019	Capacity building and technical Learning workshops on Energy storage to Accelerate energy Transition (CLEAN)	Active	\$700,000
Global	Digital Development	2021	Greening Digital: Implementing Green Digital Infrastructure Development	Active	\$610,000
Global	Transport	2020	Transforming urban transport to support green and resilient recovery - Leaders in Urban Transport Planning (LUTP)	Active	\$500,000
Honduras, El Salvador, Paraguay, Pakistan, Uganda, Burkina Faso	Urban, Rural & Land	2017	Land Records and Geo-Spatial Information Systems Linked to Green Growth (LRGIGG)	Closed	\$600,000
India, Tunisia	Urban, Rural & Land	2014	Green Smart City Development with Citizen Participation	Closed	\$800,000
Myanmar, Pakistan, Kosovo	Urban, Rural & Land	2018	Fostering Green Growth in Fragile States	Closed	\$800,000

ANNEX 3 Institutions and Partnerships

K-PARTNERS

Korean Partners bring innovative technologies, research, new governance structures and methods of green growth that are valuable to World Bank staff and client countries. K-Partners are an important part of KGGTF by engaging with grant teams and providing site visits, living case-studies and read-world examples. But the collaboration of K-Partners is not just limited to sharing Korean experience, knowledge and cutting-edge technology. They work with KGGTF and grant teams on exploring ways to translate Korea's know-how and expertise into different local environments. A wide range of K-Partners contribute to diverse forms of governance and partnerships to adapt knowledge and best practices to local context and bring a bigger impact to client countries.

Electronics and Telecommunications Research Institute (ETRI)

ETRI is a national AI research institute that contributes to the nation's economic and social development through research, development and distribution of industrial core technologies in the fields of Information, Communications, Electronics, Broadcasting and Convergence technologies.

Sector: Digital Development

Institute for Information & Communications Technology Promotion (IITP)

IITP promotes information and telecommunication technologies and industries by supporting research and development in the ICT sector. Work includes R&D policy research, information survey, analysis and service. Along with agreement, assessments and support of ICT technology into development projects.

Sector: Digital Development

Intelligent Transport Society of Korea (ITS Korea)

ITS Korea promotes cooperation among the public and private sectors for efficient implementation of ITS and contribute to the development of ITS field through various research, policy consultation, technology promotion, and business activities related to ITS.

Sector: Transport

Korea Advanced Institute of Science and Technology (KAIST)

KAIST is the first research-oriented science and engineering institution in Korea and is leading the field in developing new technologies to tackle world problems such as energy consumption and congestion in cities.

Sector: Digital Development, Urban & Transport

Korea Battery Industry Association (K-BIA)

KBIA is the most influential battery industry association in Korea. KBIA established more stringent standards for battery with reference to Korean national industrial standards and international IEC/ISO standards.

Sector: Energy

Korea Data Center Council (KDCC)

KDCC is the representative association of Korea's data center industries. It was established in 2017. KDCC's goal is to strengthen the basis of Korea's data center and data center related industries. To that end, KDCC is working to develop government policies as well as data center industry standards.

Sector: Digital Development

Korea Electric Power Corporation (KEPCO)

KEPCO is the largest electric utility in South Korea and responsible for the transmission and distribution of electricity and the development of electric power projects including those in nuclear power, new & renewable energy, and coal.

Sector: Energy

Korea Energy Agency (KEA)

KEA is a governmental agency that carries out national energy policies for energy efficiency improvement, new and renewable energy dissemination and climate change mitigation for smart and efficient demand side management based on Energy Use Rationalization Act.

Sector: Energy

Korea Environmental Industry & Technology Institute (KEITI)

KEITI is committed to achieving both environmental protection and economic growth inside and outside of Korea. KEITI financially supports the creation of environmental technologies, nurturing environmental industries and promoting an eco-friendly lifestyle.

Sector: Environment

Korea Environmental Corporation (KECO)

KECO contributes to ecofriendly national development through resource recycling and waste-to-energy facilities. KECO focuses on international conventions on climate change, policy research on pollution and carbon emissions, the operation of water facilities and sustainable urban development.

Sector: Environment & Water

K-EXIM (Korea Export-Import Bank)

K-EXIM is an official export credit agency. The bank provides export credit and guarantee programs to support Korean enterprises in conducting overseas business and offers products and services including trade finance, overseas investment credit, natural resources development credit, import credit and information services.

Korea Expressway Corporation (KEC)

KEC constructs and manages expressways throughout Korea. The corporation uses IT technologies to develop truly "intelligent highways" and promotes "smart highways" that will seamlessly integrate people, automobiles, and roads.

Sector: Transport

Korea Fisheries Infrastructure Public Agency (FiPA)

FiPA works to develop and manage fishing villages and ports, efficiently preserve and use fisheries, advance related technology, and promote tourism. The organization aims to create added values from oceans and fisheries and contribute to balanced economic development and a better quality of life.

Sector: Environment

Korea Forest Service (KFS)

KFS is responsible for the establishment and implementation of forest policies and laws. KFS implements forest policies that support the public with improving quality of life by offering recreation forests, forest restoration and support, mountaineering services, and the expansion of urban green spaces.

Sector: Environment & Energy

Korea's Global Knowledge Exchange & Development Center

The GKEDC is an open space for learning and exchanging knowledge on Korea's socio-economic development experience. GKEDC offers exhibition of artifacts, documents and interactive learning programs on economic development, industrial development, human story, and future innovation.

Korea Hydrographic and Oceanographic Agency (KHOA)

KHOA provides observation data about the ocean. The data includes oceanographic observation data such as tidal observation, water temperature and salinity observation, tidal benchmark surveys, and sea parting surveys as well as hydrographic survey data such as types and methods, current hydrographic surveys and plans, coastline survey and coastal waters survey.

Sector: Environment

Korea Institute for Advancement of Technology (KIAT)

KIAT implements grant-based ODA programs related to industrial technology and energy. KIAT's Industrial Technology & Energy ODA utilizes modern industrial technologies to tackle a variety of challenges faced by developing countries, aiming to contribute to improving the quality of life by supporting industrial development.

Sector: Energy

Korea Institute of Aviation Safety Technology (KIAST)

The Korea Institute of Aviation Safety Technology (KIAST) is a specialized aviation safety institute dedicated to fostering experts in aviation safety technologies. Particularly, Advanced Aviation Research Division is leading Korea UAS & UAM field with government.

Sector: Transport

Korea Institute of Civil Engineering and Building Technology (KICT)

KICT contributes to the development of the Korean construction industry, improves quality of life standards, furthers national economic growth, and improves social welfare. It promotes original technology in the fields of land, infrastructure, and construction.

Sector: Urban, Transport & Digital Development

Korea Institute of Ocean Science and Technology (KIOST)

KIOST strives to develop cutting-edge scientific technology and acquire new knowledge to discover advanced life, minerals, and energy resources in the ocean and establish future-oriented port city infrastructure and coastal landscapes.

Sector: Environment

Korea Land and Geospatial InformatiX Corporation (LX)

LX is a semi-governmental agency under Korea's Ministry of Land, Infrastructure and Transport (MOLIT), which can contribute to the provision of technical assistance to ICT platforms for land and geospatial information, geospatial dataset management and training/capacity building.

Sector: Urban & Digital Development

Korea Maritime Institute (KMI)

KMI is a policymaking think tank for Korea's maritime and fisheries industry. The institution conducts systematic and comprehensive research on current issues related to the marine, fisheries, shipping, and ports industries, as well as national policy.

Sector: Environment

Korea Overseas Infrastructure and Urban Development Corporation (KIND)

KIND supports Korean companies for project planning, feasibility studies, project information and project bankability. Through the activities KIND aims to contribute to life quality improvement and sustainable growth in the partner countries.

Sector: Urban & Transport

Korea Photovoltaic Industry Association (KOPIA)

KOPIA is the only government approved national PV association dedicated to the photovoltaic industry with 90 members representing all facets of the photovoltaic value chain in Korea.

Sector: Energy

Korea Smart Grid Institute (KSGI)

KSGI implements Korea's Smart Grid Initiative aimed at modernizing electric power systems and managing the government's Smart Grid Roadmap and develops technology that converges electric power and IT to build a nationwide Smart Grid and achieve low carbon green society.

Sector: Energy & Environment

Korea Transport Institute (KOTI)

KOTI is a leading national think tank in Korea's transport and logistics sector. KOTI provides recommendations for the nation's transport policy and human centered highly convenient transport systems and creates an efficient transport system through technical innovations.

Sector: Transport

Korea Power Exchange (KPX)

KPX is the quasi-government agency under the Ministry of Trade, Industry and Energy responsible for fair and transparent operation of the electricity market and efficient operation of the electric power system and grid in Korea.

Sector: Energy

Korea Rural Community Corporation (KRC)

KRC is responsible for rural development and maintenance of agricultural infrastructure such as reservoirs, dams, and irrigation facilities, operation of Farmland Bank to secure efficient use of farmland, reclamation, and rural community development.

Sector: Agriculture

Korea Research Institute for Human Settlements (KRIHS)

KRIHS conducts research on the efficient use, development, and conservation of territorial resources and contributes to sustainable territorial development, balancing development and conservation, and housing and infrastructure provision.

Sector: Urban

Korean Transport Safety Authority (KOTSA)

KOTSA carries out transportation projects under the Ministry of Land, Infrastructure and Transport. Encompassing road, rail, and air transportation, KOSTA promotes various traffic-safety programs for a safe and happy society with no traffic accident.

Sector: Transport

K-water (Korea Water Resources Corporation)

K-water has played a key role in enhancing people's welfare by developing and managing water resources for more than half a century. Recently they have been utilizing the know-how to protect the world from water disasters caused by severe climate change. Quantity-quality-ecology nexus of water management with ICT technologies and the futuristic eco-friendly city are typical issues they focus on.

Sector: Water & Energy

K-water Academy

K-water Academy is a hub for global water capacity building. Water management experts provide professional training courses for government officials, water companies and international participants. The Academy offers high quality educational content based on cutting-edge technology and its 50-year know-how.

Sector: Water

LH (Korea Land and Housing Corporation)

LH was established to improve the quality of life of the people and advance the national economy. LH's responsibilities include housing welfare, ICT-based smart city development, urban regeneration for smarter and more sustainable cities, and regional development through urban development and housing, and solid industrial infrastructure foundations.

Sector: Urban

Ministry of Environment (MOE)

MOE oversees environmental protection in Korea by enforcing laws and regulations, sponsoring ecological research, planning mid to long term comprehensive measures for environmental conservation, providing administrative and financial support for environmental management to local government and promoting international cooperation on climate change and carbon neutrality.

Sector: Environment

Ministry of Oceans and Fisheries (MOF)

MOF is responsible for maritime and fisheries sectors including the promotion of maritime safety and security, the protection of the marine environment, the development of port and fishing ports, the research and development on polar issues to the management and sustainable use of fishery resources and the promotion of marine leisure activities.

Sector: Environment

Ministry of Land, Infrastructure and Transport (MOLIT)

MOLIT is responsible for establishing and coordinating national territory policy and basic laws related to national territory, preserving and developing national territory and water resources, construction of urban, road and housing, construction of coastal, river, and land reclamation, and land reclamation.

Sector: Urban & Transportation

Ministry of Science and ICT (MIST)

MSIT focuses on accelerating innovation across society through building an environment that promotes autonomous and audacious research, securing source technologies and growth engines and converging science and technology with ICT in Korea.

Sector: Digital Development

Ministry of Trade, Industry and Energy (MOTIE)

MOTIE regulates economic policies related to the industrial and energy sectors and encourages foreign investment in the areas of commerce, investment, industry and energy in Korea. MOTIE helps to reinforce traditional industrial strengths while developing new growth engines.

Sector: Energy

National Federation of Fisheries Cooperation (Suhyup)

Suhyup develops fishing villages through a democratic, cooperative organization to enhance the social and economic status of fishermen, and to increase the incomes of fishing households and their capacity to produce fishery products.

Sector: Environment

National Fishery Products Quality Management Service (NFQS)

NFQS is responsible for quarantine and inspection of exporting and importing fish and fishery products. NFQS quarantines aquatic organisms for transplantation and serves as a guide for information-oriented administration and scientific development to provide safe and quality fish and fisheries products.

Sector: Environment

National Geographic Information Institute (NGII)

NGII promotes spatial information and technology for managing geodetic VLBI center, setting up 3-dimensional aerial information, modifying national base map in real time and establishing human geographical DB. The institute conducts research and development on spatial information, provides geographic training services and strengthens international cooperation.

Sector: Urban & Digital Development

National Information Society Agency (NIA)

NIA is a national think-tank for information and digital transformation. NIA provides optimal methodologies, strategies, and solutions. Priority sectors include ICT Policy, ICT Convergence (Healthcare and welfare, Education and culture, Land and transport, Environment, etc.), Digital culture, Big Data, Open data and Innovation, E-Governance, ICT Platforms and Services (AI, Cloud, Network, etc.)

Sector: Digital Development

Rural Development Administration (RDA)

RDA is a national R&D institution in the agriculture sector in Korea which promotes innovation in agricultural technology. RDA conducts agricultural R&D in parallel with deploying customized extension services to disseminate technologies that reduce costs and produce high-quality products covering Agricultural Sciences, Crop Science, Horticultural and Herbal Science, and Animal Science.

Sector: Agriculture

Korea Real Estate Board (REB)

REB, a state-owned enterprise, formerly known as Korea Appraisal Board (KAB), is responsible for real estate assessment, price statistics, market management, appraisal review, expropriation and compensation services, urban renewal consulting, green building certification, and R&D.

Sector: Urban

Seoul Energy Corporation (SEC)

Seoul Energy Corporation implements "One Less Nuclear Power Plant" program of Seoul Metropolitan Government to encourage energy independence in Seoul. Key projects include decentralized energy supply, alternative transport vehicles and energy efficiency, energy sharing, and interregional cooperation.

Sector: Energy

Sudokwon Landfill Site Management Corporation (SLC)

SLC was established under the Ministry of Environment to promote appropriate treatment of urban waste matter, resource recovery and protection. SLC applies amassed waste collection techniques and utilizes landfill methane as fuel to drive power generators to minimize environmental impacts.

Sector: Environment

Seoul Metropolitan Government (SMG)

SMG is a local government of South Korea, dealing with and responsible for the administrative affairs for the capital city of South Korea. SMG shares its knowledge and best practices with partner cities, international organizations and MDBs and provides policy consulting on urban development projects.

Sector: Urban & Digital Development

Seoul National University (SNU)

Seoul National University is considered the most prestigious university in South Korea as a Community of Knowledge which leads the future. The university envisions fostering global convergence talent, building an innovative knowledge ecosystem, creating knowledge-based social values, and establishing a foundation for sustainable university development.

Seoul Transport Operation and Information Service (TOPIS)

Seoul TOPIS is the Intelligent Transportation System (ITS) brand of Seoul Metropolitan Government. TOPIS is a smart metropolitan city management hub that manages transportation, disasters, and other security-related events in an integrated manner. TOPIS allows immediate decision-making and responses in times of emergency and prevents transportation problems through big data analysis.

Sector: Transport

University of Seoul (UOS)

UOS is a public university funded and supported by the Seoul Metropolitan Government. UOS has a 100-year history of learning and sharing that promotes innovative and future-oriented research, cultivates competitive human resources, and leads to social change through public outreach.

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PAGE 15

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PAGE 17

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PAGE 18

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PAGE 80
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PAGE 81
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Bottom: The Express Tribune

PAGE 82
Africa Drone Forum

PAGE 84
Missing Maps

PAGE 88
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Abbreviations

ADB	Asian Development Bank	ILIGS-GER	Integration of Land information and Geospatial Systems for Green Economic Recovery
ADF	African Drone Forum	ISO	International Organization for Standardization
AI	Artificial Intelligence	ITS	Intelligent Transport Society
AIIB	Asian Infrastructure Investment Bank	JICA	Japan International Cooperation Agency
APR	Annual Progress Report	KAB	Korea Appraisal Board
CCAP	Climate Change Action Plan	KAIST	Korea Advanced Institute of Science and Technology
CCSA	Cross Cutting Solutions Area	K-BIA	Korea Battery Industry Association
CLEAN	Capacity building and technical Learning workshops on Energy storage to Accelerate energy Transition	KDCC	Korea Data Center Council
COP26	United Nations Climate Change Conference	KE	Knowledge exchange
DB	database	KEA	Korea Energy Agency
DNP	National Planning Department of Colombia	KEC	Korea Expressway Corporation
EAP	East Asia and Pacific	KECO	Korea Environmental Corporation
ETRI	Electronics and Telecommunications Research Institute	KEITI	Korea Environmental Industry & Technology Institute
EU	European Union	KEPCO	Korea Electric Power Corporation
FCDO	Foreign, Commonwealth & Development Office	KETI	Korea Environmental Industry & Technology Institute
FIPA	Korea Fisheries Infrastructure Public Agency	K-EXIM	Korea Export-Import Bank
GGGI	Global Green Growth Institute	KFS	Korea Forest Service
GGKP	Green Growth Knowledge Platform	KGGTF	Korea Green Growth Trust Fund
GHG	Greenhouse Gas	KGID	Korea Green Innovation Days
GKEDC	Global Knowledge Exchange & Development Center	KHOA	Korea Hydrographic and Oceanographic Agency
GNHCP	Green National Highways Corridor Project	KIAST	Korea Institute of Aviation Safety Technology
GP	Global Practice	KIAT	Korea Institute for Advancement of Technology
GRID	Green Resilient and Inclusive Development	KICT	Korea Institute of Civil Engineering and Building Technology
IBRD	International Bank for Reconstruction and Development	KIND	Korea Overseas Infrastructure and Urban Development Corporation
ICT	Information and communication technology	KIOST	Korea Institute of Ocean Science and Technology
IDA	International Development Association	KMI	Korea Maritime Institute
IEC	International Electrotechnical Commission	KOPIA	Korea photovoltaic Industry Association
IFC	International Finance Corporation		
IITP	Institute for Information & Communications Technology Promotion		

KOSTA	Korea Transport Safety Authority	PES	Payment for Environmental Services
KOTI	Korea Transport Institute	PPP	Public-private partnership
KPOK	Korea Program for Operational Knowledge	PSJET	Private Sector Jobs and Economic Transformation project
KPX	Korea Power Exchange	PV	photovoltaic
KRC	Korea Rural Community Corporation	R&D	Research and Development
KRIHS	Korea Research Institute for Human Settlements	RDA	Rural Development Administration
KSGI	Korea Smart Grid Institute	REB	Korea Real Estate Board
K-Water	Korea Water Resources Corporation	RISE	Resilience Inclusive Sustainability and Efficiency
LH	Korea Land and Housing Corporation	RoK	Republic of Korea
LLC	Limited Liability Company	SEC	Seoul Energy Corporation
LX	Korea Land and Geospatial InformatiX Corporation	SHRDC	Seoul Human Resource Development Center
MCUD	Ministry of Construction and Urban Development of Mongolia	SLC	Sudokwon Landfill Site Management Corporation
MDB	Multilateral Development Bank	SMG	Seoul Metropolitan Government
MET	Ministry of Environment and Tourism of Mongolia	SNU	Seoul National University
MIST	Ministry of Science and ICT	STEP	Smart Technology and Energy Efficient Production
MOE	Ministry of Environment	SUTP	Sustainable Urban Transport Project
MOEF	Ministry of Economy and Finance	SWM	Solid Waste Management
MOF	Ministry of Oceans and Fisheries	TA	Technical Assistance
MOLIT	Ministry of Land, Infrastructure and Transport	TF	Trust Fund
MoTI	Ministry of Trade and Industry	TOPIS	Seoul Transport Operation and Information Service
MOTIE	Ministry of Trade, Industry and Energy	TTL	Task Team Leader
MVCT	Ministry of Housing City and Territory of Colombia	UAM	Urban Air Mobility
NBS	Nature-Based Solutions	UAS	Unmanned Aircraft Systems
NCCR	Nile Cooperation for Climate Resilience	UNDP	United Nations Development Programme
NCMH	National Center for Mental Health	UNESCAP	United Nations Economic and Social Commission for Asia and the Pacific
NFQS	National Fishery Products Quality Management Service	UNESCO	United Nations Educational Scientific and Cultural Organization
NGII	National Geographic Information Institute	UNICEF	United Nations International Children's Emergency Fund
NPOA-ML	National Plan of Action for Prevention, Reduction, and Management of Marine Litter	UOS	University of Seoul
ODA	Official Development Assistance	URL	Urban, Disaster Risk Management, Resilience, and Land
OECD	Organization for Economic Cooperation and Development	VLBI	Very Long Baseline Interferometry
OLC	Ocean Learning Campus	WBG	World Bank Group



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